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A STRATEGY FOR A

LIVABLE ENVIRONMENT

U.S. DEPARTMENT OF HEALTH,  
EDUCATION, AND WELFARE  
Washington, D.C. 20201

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**Washington, D.C. 20201**

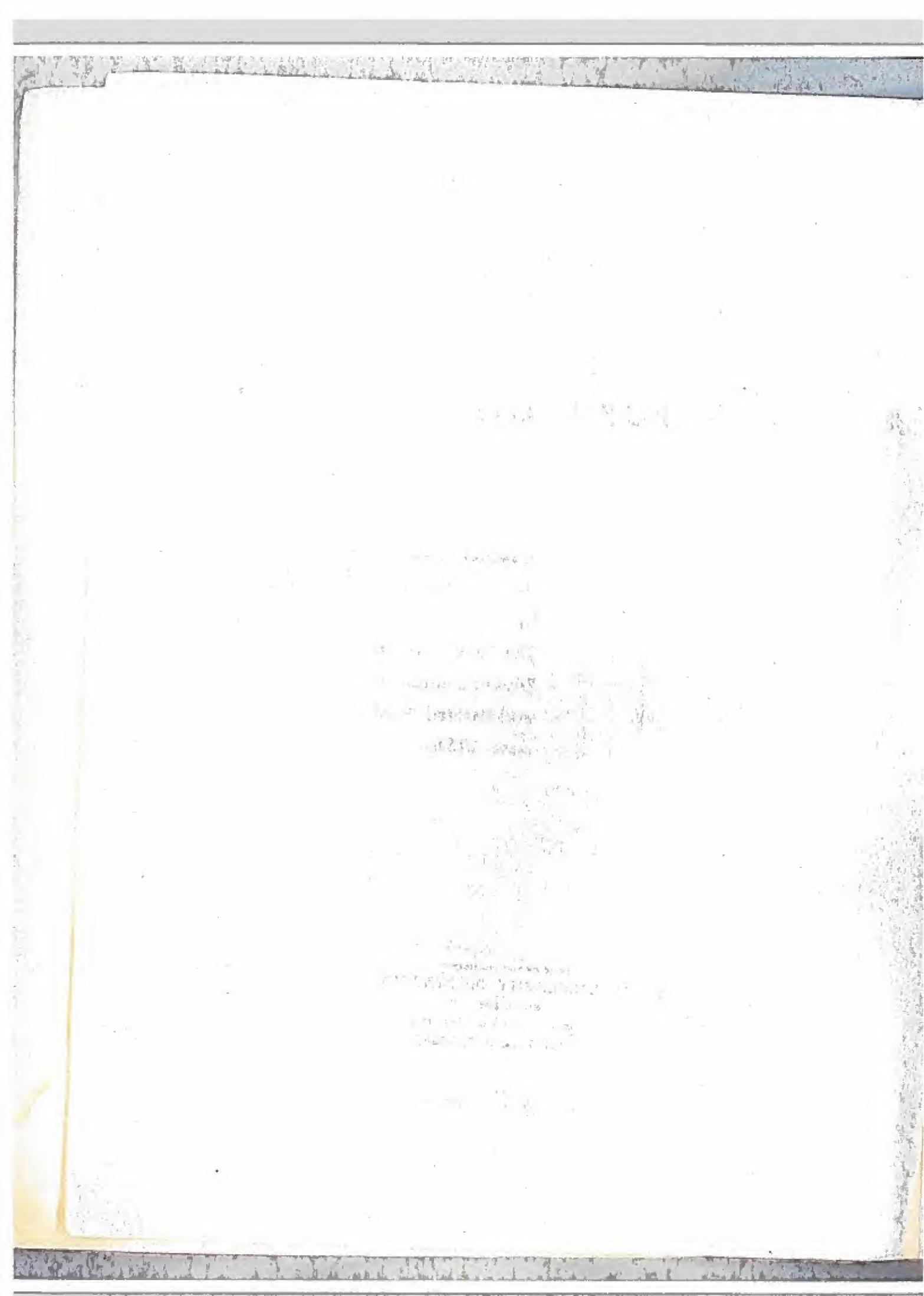
# A STRATEGY FOR A LIVABLE ENVIRONMENT

A Report to the Secretary of  
Health, Education, and Welfare  
by  
The Task Force on  
Environmental Health  
and Related Problems  
June 1967

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
WASHINGTON, D.C. 20201

OFFICE OF THE SECRETARY

June 9, 1967

The Honorable John W. Gardner  
Secretary  
Department of Health, Education, and Welfare  
Washington, D. C. 20201

Dear Mr. Secretary:

In accordance with the instructions in your directive of November 1, 1966, creating the Task Force on Environmental Health and Related Problems, we are transmitting in this report findings and recommendations with respect to the Department's responsibility for protecting man from threats to his health and welfare as a result of environmental damage.

Respectfully submitted,

*Ron M. Linton*  
Ron M. Linton, Chairman

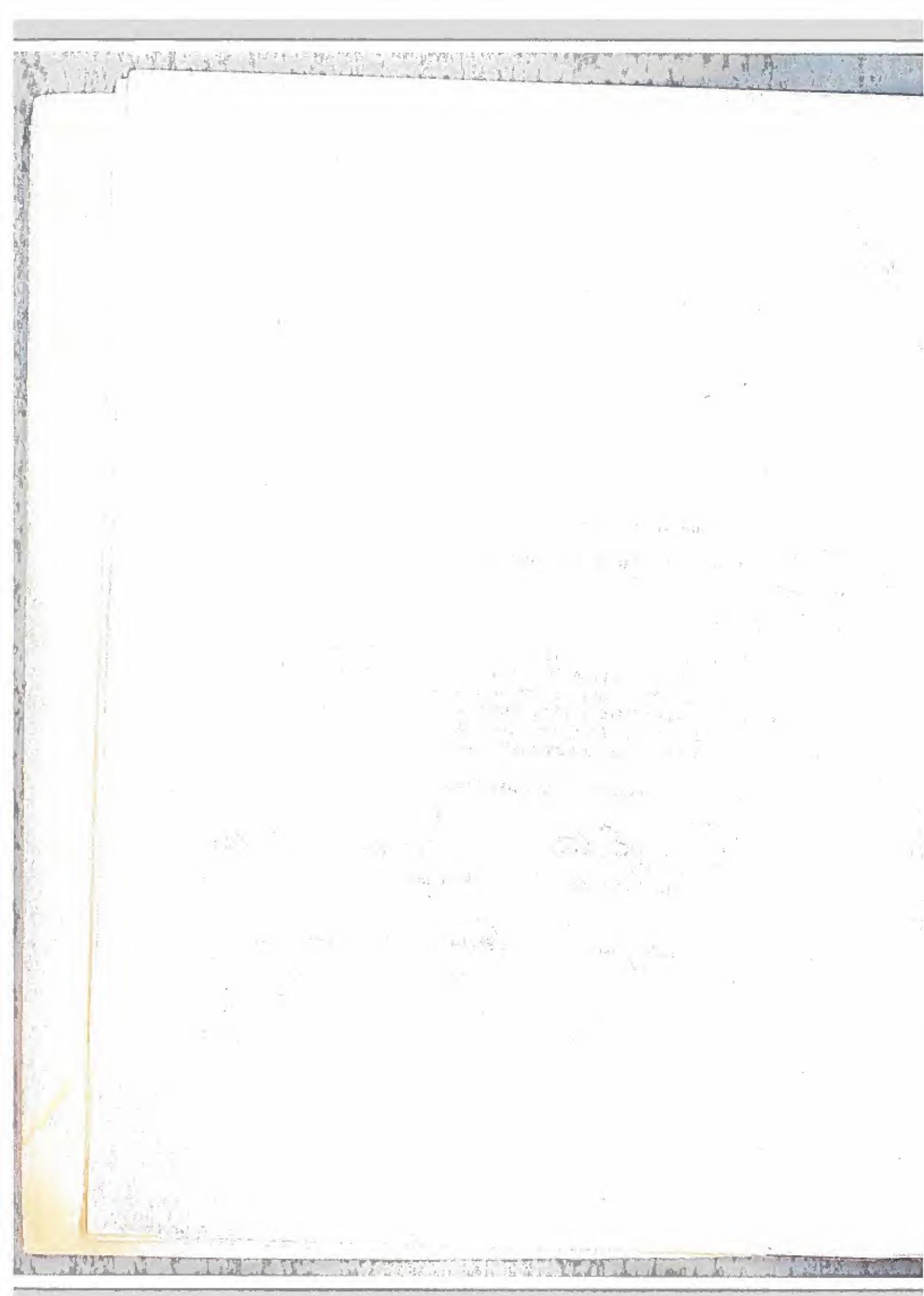
*Samuel Lenher*  
Samuel Lenher

*Anne Draper*  
Anne Draper

*Harold L. Sheppard*  
Harold L. Sheppard

*John J. Hanlon*  
John J. Hanlon, M.D.

*Raymond R. Tucker*  
Raymond R. Tucker



## PREFACE

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SECRETARY JOHN W. GARDNER created the Task Force on Environmental Health and Related Problems and charged it with recommending to him goals, priorities, and a Departmental strategy to cope with environmental threats to man's health and welfare.

When the six members of the Task Force met for the first work session November 18, 1966, the magnitude of the Secretary's charge in relation to the seven months available to respond appeared enormous.

But the initial decisions the Task Force made to get the job done ensured it would meet its report date.

First, the Task Force quickly identified areas upon which it had to concentrate. And, as it did this, it became clear that this was what the Task Force needed to do for the Department as well. To try to do too much results in doing too little. The lack of specific Department goals emanating from the Office of the Secretary results in such a myriad of goals set by the operating agencies that too much is attempted.

Very quickly other decisions fell into place. The Task Force decided that it need not attempt to define or document environmental hazards which have been exhaustively studied by groups of distinguished authorities (many of whose reports are listed in the bibliography of this Report). Rather, the Task Force elected, as one major approach to gathering needed information, to meet with authorities from many fields of knowledge to seek their counsel in developing a comprehensive analysis of the Department's environmental health responsibilities.

Between December 1966 and March 1967 the Task Force held five two-day conferences in Boston, New York, Detroit, San Francisco, and Los Angeles.

During these conferences nearly 100 persons from educational institutions, State and local governments, private industry, and foundations and research institutions advised the Task Force on environmental problems and to what degree they existed, how man's future would be affected by these problems and what ought to be done about them.

In addition to the conferences, more than a dozen informal meetings were held with nearly 100 other experts in the field. Correspondence and individual interviews were conducted with scores more experts including those in other Federal agencies.

This plus much written documentation provided the Task Force with its basic data. It is from these basic data that the recommendations emerged.

However, before developing these recommendations, the Task Force made two other basic decisions. One was that the environmental contamination man creates man can correct, and that the Nation's industrial and technological genius needs to be brought to bear on this problem. Second, action cannot be delayed until all the answers or even better answers are available. Action must be taken on the knowledge and technical capability now available while better answers are being sought.

Thus, it became evident that this Report would have two thrusts: first, identifying those environmental hazards which need action now and determining what initial steps offer the most immediate beneficial return; and, second, creating a system by which new action goals can be developed and met in the future.

The action goals presented in this Report are designed so that the Secretary can ascertain from the operating agencies precise information on how much personnel will be required, how they will be used and how much it will cost to meet established goals.

The Task Force considered both the costs attendant to its recommendations and the organizational structure necessary to achieve the goals. It proved no easy job to arrive at definitive cost figures. Organizational structure was not dealt with since the Task Force had not been asked to make recommendations on reorganization.

The Task Force did conclude that its recommendations can be carried out and the goals achieved by the Department as presently organized, but that organization along more functional lines would increase the efficiency of the Department.

The costs of recommended grant-in-aid programs are limited by the Department's administrative capability to spend and the engineering and planning capability of State and local governments to absorb. The figures do not reflect the costs required for total solution. They constitute only the Federal financial investment and it is assumed this would be matched in part by non-Federal investment.

The grant-in-aid recommendations cover solid-waste disposal and drinking water improvement. Combined, these would cost one billion dollars over a five-year period.

Another cost resulting from the recommendations is for additional personnel for the Department, increased operating costs, and program grants for planning by State and local governments. Only a broad estimate can be made—\$500 million for a five-year period.

Another cost figure grows out of the recommendations for increased research, specifically developmental research by industry. This figure is conceptual at best. It will depend finally on the Federal Government's willingness to do business with industry and industry's desire to do business with the Government.

But the Task Force believes that the Department must plan in terms of a billion dollar expenditure for research and development in environmental protection over the next five years.

Thus, the total Department of Health, Education, and Welfare spending which might result if the recommendations of this report are adopted would be \$2.5 billion for a five-year period.

While the Task Force found difficulty in assessing the precise costs of its recommendations, it rapidly learned that one fundamental handicap exists to realizing any significant gains in improving the quality of our environment. It is the monetary difficulties faced by the Nation's local governments in obtaining operating funds.

While this is a problem outside the immediate responsibilities of the Department of Health, Education, and Welfare, it is clear that if the Department's environmental health and welfare program is to be successful, State and local governments must be able to act much more effectively. The simple approach of supplying operating revenues to the cities would not solve the long-range problems.

The Task Force has no answer to the problem of providing adequate funds essential for local government activities, but it does feel that steps must be taken toward finding solutions.

Toward this end, it recommends the Secretary urge the President to call a White House Conference on Financing Local Government to explore ways for cities and other units of local government to raise adequate funds to finance essential governmental activities on a metropolitan and regional scale.

Local government today does not have the financial resources to meet its responsibilities to its citizens. New funding procedures must evolve.

All of these findings and recommendations can be successfully pursued only if policy-making officials and the employees of the Department of Health, Education, and Welfare, and the people of this Nation see the Department as a "people oriented" agency.

The Department of Health, Education, and Welfare must be concerned with the effects on the quality of human life of all the activities in which man engages. Given this role, the resources, and the ability to focus its activities on profitable priorities, the Department of Health, Education, and Welfare can help provide man with the quality of life he is seeking.

RON M. LINTON  
*Chairman,*  
*The Secretary's Task Force*  
*on Environmental Health and*  
*Related Problems.*



## SUMMARY

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**AMERICAN AFFLUENCE** today contaminates the Nation's air, water, and land faster than nature and man's present efforts can cleanse them.

But of even greater concern, experience has shown that undetected environmental health hazards, either alone or in conjunction with known hazards, can arise suddenly to create conditions of living harmful, if not dangerous, to the public. It is necessary then that a constant effort be made to detect these hazards before they reach the crisis stage. But, while we must be alert to the effects of new hazards, continuing effort also must be expanded to learn more about known hazards so that they can be controlled.

We know something of air pollution, but we know little about the hazard potential of 500,000 to 600,000 synthetic chemicals and other compounds on the market today. We know something of water quality, but little of the effects of trace metals. Can we cope with solid waste? What is the future problem of nuclear waste?

The Task Force concludes that danger to environmental quality, particularly in the broad context that the Task Force has reviewed it, is among the most important domestic problems today. It affects all Americans where they live, work, and play. It can very materially damage their children and generations yet unborn.

What is needed now is an overview of the entire question of environmental health and its interrelated components, not only water pollution, air pollution, solid wastes, but, also, noise, crowding, radiation, traffic safety, and ailments which can be related to these factors.

The American public must develop this overview, a sensitivity to the scope and limitations of the environment.

The public must learn that air, water, and land are limited, that the number of Americans is growing, that their affluence and effluents are increasing, forming something of an ecological chain reaction.

The 140 million Americans who live concentrated on 10 percent of the Nation's land area must now take vigorous action to clean up the environment.

As the facts become clear, the public will be shocked at the price it is paying for its affluence. But, if it is obvious that one way to halt the contamination of the environment is to prohibit automobiles, stop the generation of electricity and shut down industry, it is just as obvious that this

way is impossible. What is possible is to find ways to eliminate contamination at its source. Or, next best, to capture a pollutant and use it in a non-harmful way; or, finally, to bring the level of pollution down to a point compatible with the requirements of human health and welfare.

The Department of Health, Education, and Welfare should have primary responsibility for protecting Americans from all the threats to their environment. This calls not only for an overview but for a reorientation. It calls for a basic policy which accepts the principle that environmental contamination be treated as a community disease, that the effects of this disease on man are mental as well as physical, and encompass the aesthetic as well as the material values of life.

In order for the Department to pursue such complete responsibility, action must be taken on the basis of existing knowledge. The Task Force does not suggest that acquisition of new knowledge stop, but it recognizes and deplores the tendency to delay action on the grounds that additional knowledge is needed before efforts are made to solve a problem.

There will always be the need for additional knowledge. Goals will be set and discarded. Criteria and standards will be set and revised. The war to keep man from spoiling his environment will never end. But we can and must reach a point where we prevent damage before it is severe.

Toward this end, the Department now needs to approach environmental health problems from two directions. First, action must be taken against the most serious existing problems, and second, an environmental protection system must be created that offers a means to identify emerging environmental hazards and prevent them from getting out of hand in the future.

The first direction covers the adoption of action goals which set dates for accomplishment, the means to reach the goal, and the measure to determine if the goal has been reached. If followed, these action goals can result in a reversal of the present contamination trend.

The second direction covers establishing an environmental protection system which continually identifies and measures problems, sets out what needs to be done about the problems, and then takes action through creating new goals.

This Report deals with these two approaches to eliminating or bringing environmental problems under control.

It includes 34 principal recommendations; ten of these are action goals, ten deal with the creation of an environmental protection system, and the remainder are miscellaneous recommendations which support the goals and system.

Chapter One deals with a conceptual view of the environment man lives with, how it got that way and what it might be if we fail to take needed

action. It calls for looking at total man in his total environment rather than taking a crisis or piecemeal approach to solving problems.

Chapter Two enumerates the ten Action Goals which constitute steps which must be taken now by the Department if it is to meet its responsibilities for the future.

Chapter Three looks beyond the achievement of specific quantitative goals and describes a plan to permit the setting of new goals as conditions change. Four recommendations deal with the mechanics of the system and six deal with objectives of the system and its support.

Chapter Four presents the major items of the Report which will require new Congressional authority and suggests that to focus public attention these be submitted by the President in a single Environmental Protection Act.

The ten Action Goals cover the areas which the Task Force felt deserve the highest priority today.

Air pollution has reached a point where abatement is the principal effort required. But it needs to be accompanied by a vastly stepped up developmental research program.

Water quality is at a shocking level for the wealthiest Nation in the history of the world. About one-third of the 19,200 communities in the United States which have municipal water systems fail to meet existing Public Health Service standards. But, to compound the problem, it is not certain that the present standard is meaningful.

Waste disposal is a major governmental activity. But it is no solution to shift contamination from the ground up into the air through smoke. There must be a total look at all waste disposal, including nuclear waste disposal.

Urban contamination is being compounded so rapidly that broad environmental criteria and standards are needed. Yet, too little is known to permit the development of criteria and standards on such problems as the health effects of a super highway cutting through a crowded urban area, the mental stresses generated by traffic jams, or the effect of sonic booms on major population areas.

Population problems compound all the other environmental threats to man.

Materials, metals, and chemicals in ever-increasing abundance and complexity come to the market place with no previous analysis of their toxic effect upon the environment. This cannot be permitted to continue.

Consumer protection against dangers from household equipment and appliances is necessary in a world where technology is advancing at a tremendous pace. Further, with so many food products being subjected to chemical processing before they reach the mouth, bold new efforts are necessary to assure public safety.

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Consumer protection against dangers from household equipment and appliances is necessary in a world where technology is advancing at a tremendous pace. Further, with so many food products being subjected to chemical processing before they reach the mouth, bold new efforts are necessary to assure public safety.

Radiation hazards, in spite of the amount of public sensitivity to the subject during the past quarter century, are still in need of improved control. Even today, many uranium miners are over-exposed to radiation and are likely to die prematurely. Clearly, more protection is needed.

The occupational illness and safety protection Goal for workers focuses concern on the work-place environment of 80 million Americans. Even this comparatively manageable environment is now controlled by safety protection for less than 20 percent of the work force.

Physical and mental health standards for the urban environment do not exist today. The Task Force believes that not only should the Department of Health, Education, and Welfare identify the (1) permissible, and (2) practical levels of these environmental insults which concentrate in urban areas, but it should also encourage other Federal agencies, in particular the Department of Housing and Urban Development and the Department of Transportation, to conform to these standards in the implementation of their own programs. Likewise, full cooperation in the achievement of standards should be encouraged by State and local governments and private groups and individuals.

Some of these Action Goals require legislation; for others, sufficient authority is available. All of them can be achieved. They are not, however, ends in themselves. They are first steps and must be superseded ultimately by more advanced goals which must be set by the Secretary. But, if the Secretary is to be able to develop successive goals, the functional activity of the Department must be structured to achieve specific ends. This functional approach means orienting all environmental health research so that today's and tomorrow's hazards can be identified and their effect on man determined. It means establishing criteria and dual level standards with the lower level representing the minimum acceptable for health protection and the upper being the desirable, achievable level. It means using contracts with industry to develop the technology necessary to reach the upper level. And, finally, it means obtaining compliance with national goals through technical assistance and financial support of State and local governments. This is an Environmental Protection System.

If it is to work, the System must have specific immediate objectives, such as establishment of criteria and standards for elements discharged into the air, water, and soil, and creation of a surveillance system, nationwide, for all pollutants in air, water, and soil.

And compliance must be based on more than abatement action. There must be an inducement so strong for State and local governments to do comprehensive planning on an appropriate geographic scale and to conform with national goals and objectives that it is politically and economically unpalatable for them to do otherwise.

Further, if the System is to work, specific programs for the development

of sufficient competent manpower must be inaugurated and public awareness increased and strengthened.

The entire study of ecology and the environment at universities needs major support through grants, fellowships, and the creation of special ecological laboratories. The significance of ecology in various professional fields such as medicine, law, engineering, architecture, planning, and public and business administration requires investigation. Encouragement is needed to generate articles and books on the many aspects of the subject.

Research is required into the cause-and-effect relationships between environmental factors and specific diseases. A series of Departmental incentives is needed to attract, train, and keep top quality personnel in the environmental health field. Free movement of leaders and workers between research activities and Departmental operating activities should be encouraged in and between Federal, State, and local governments.

The Task Force recognizes that environmental conditions vary from city to city. One city may have a concentration of industrial problems. One may have special traffic problems. One may have a heavy smoke pollution problem, while still others may be susceptible to climatic complications.

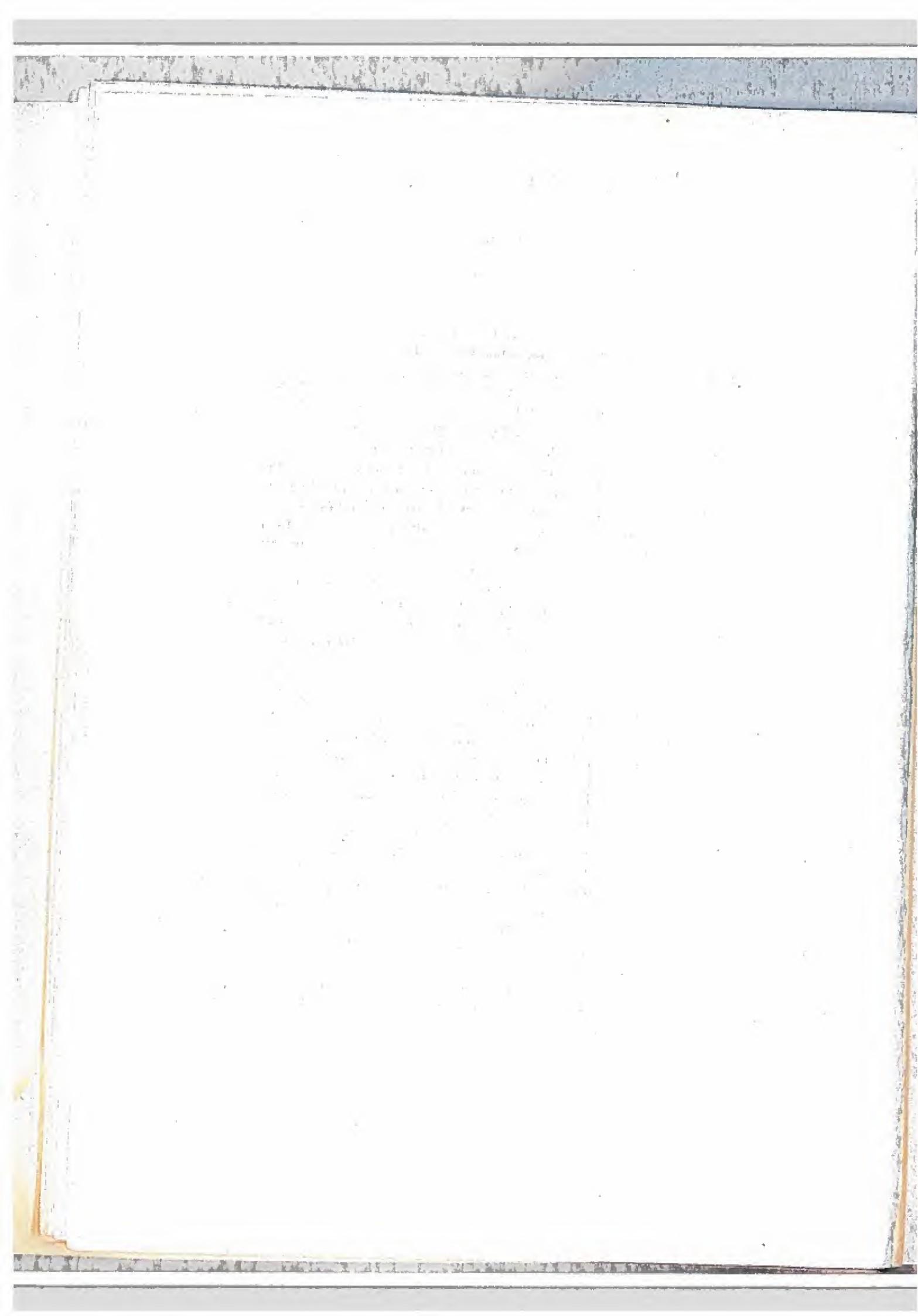
Because each urban complex is environmentally different, the Task Force believes that local governments should be encouraged to work together in setting standards for their area consistent with Federal minimums.

Participation on the part of local government in any regional environmental program should be as great as possible, but it must be recognized that environmental protection problems will have to be solved on the metropolitan or regional scale.

We must engage in experimentation and research in order to increase our capacity to make decisions at the metropolitan or regional level.

Finally, to activate the broad coordinated approach to the entire question of environmental health and related problems, a systems approach for research and development is needed. To obtain this requires the creation of the post of Assistant Secretary of the Department of Health, Education, and Welfare for Research and Development.

The creation of the Council of Ecological Advisors, authority to set standards on a host of new substances and the right to prohibit their use until the standards are met, the extension of the Secretary's abatement authority to all hazards of an interstate nature, a mechanism to provide technical assistance teams to State and local governments and to use Federal grant-in-aid money conditioned on comprehensive program planning—all these form the core of a new effort to cope with present and future environmental problems. Implemented, they will mean protection on a systematic basis. Without them, the Department and the Federal Government will lack the extensive arsenal of weapons needed to do the job the American people want and expect.



## RECOMMENDATIONS

THE TASK FORCE considered recommendations numbering in the hundreds during its seven months of deliberations. But it decided to set forth only those it considered to be of the highest priority.

Omissions, then, are not indicative of invalid recommendations, but are the result of focusing on the areas having the potential for the most beneficial result.

The recommendations set forth here total thirty-four, divided into three groups: ten Action Goals, ten recommendations dealing with the Environmental Protection System, and fourteen other recommendations which support the Goals and the System. The number following each recommendation indicates the Chapter and page where the recommendation appears in the Report.

The Task Force initially considered recommending a general overall goal for environmental health, but decided that a statement of purpose would be more suitable, leaving the goals for program action.

For the Department to pursue intelligently its responsibility for making the environment man's ally and not his enemy it must have a purpose. This purpose must be compatible with the Department's concern with people and must be relevant to the Department's general health goal, to provide for the optimum health of the American people.

The Task Force recommends that the Department's purpose for environmental concern be:

To ensure that every American can thrive in an attractive, comfortable, convenient, and healthy environment by:  
—controlling pollution at its source,  
—reducing hazards,  
—converting waste to use, and  
—improving the aesthetic value of man's surroundings.

## ACTION GOALS

The country today is faced with environmental challenges from a number of areas. Some are greater problems than others; some threaten to become serious problems for tomorrow unless action against them begins today. The need of the Department of Health, Education, and Welfare is to act now on those matters which most urgently demand attention.

We recommend the following immediate action goals:

<b>Goal 1</b>	An Air Quality Restoration effort to initiate by 1970, in 75 interstate areas, abatement plans to reduce plant stack emissions by 90%, and to establish national standards to reduce vehicle exhaust emissions by 90% from 1967 levels through enforcement and a technological development program to provide the equipment necessary to meet the standards. (Chapter II, page 10)
<b>Goal 2</b>	A water quality effort by 1970 to test all existing and proposed public drinking water supply systems and produce meaningful public drinking water standards which, through an enforcement program, will ensure health-approved drinking water for 100% of the Nation's public systems. (Chapter II, page 13)
<b>Goal 3</b>	A waste disposal effort to provide, by 1973, a grant-in-aid program for solid waste disposal at the local level; developmental research program to integrate solid and liquid waste disposal and air quality control; and for the disposal of nuclear wastes. (Chapter II, page 14)
<b>Goal 4</b>	A population research effort to determine by 1968 the effects of population trends on environmental protection goals and programs as part of the basis for setting Departmental objectives with respect to family planning and population dynamics. (Chapter II, page 16)
<b>Goal 5</b>	An urban improvement effort to develop by 1973, through research, basic data sufficient to establish human levels of tolerance for crowding, congestion, noise, odor, and specific human endurance data for general stress and accident threats, including traffic, home, and recreation accidents. (Chapter II, page 18)

<b>Goal 6</b>	A materials, trace metals, and chemicals control effort to establish, by 1970, human safety levels for synthetic materials, trace metals, and chemicals currently in use, and prohibit after 1970 general use of any new synthetic material, trace metal, or chemical until approved by the Department of Health, Education, and Welfare. (Chapter II, page 20)
<b>Goal 7</b>	A consumer protection effort which, by 1970, will initiate a comprehensive program for the identification of health and safety hazards associated with the use of appliances, clothing, food, hazardous substances, and other consumer products and for the control of such products which fail to meet consumer protection standards established by the Department. (Chapter II, page 21)
<b>Goal 8</b>	A radiation control effort which, by 1970, through developmental research and enforcement, adequately protects workers and the public from harmful radiation levels. (Chapter II, page 22)
<b>Goal 9</b>	An occupational disease and safety protection effort to extend, by 1970, preventive services to 100% of the employed population at its work place. (Chapter II, page 23)
<b>Goal 10</b>	A governmental compliance effort which, by 1969, through effective relations with local, State, and Federal governments, will ensure that criteria and standards for physical and mental health for housing, urban development, and transportation will be available and used by the Federal agencies administering these programs. (Chapter II, page 25)

## STRATEGY

To protect man from the adverse effects of environmental change, the Department needs to know the problems, measure them, devise means to solve them, and obtain compliance with regulatory standards. If this approach is to be successful, there must be an adequate supply of competent manpower, and a public awareness of the dangers. All of this can be accomplished through an Environmental Protection System. The Task Force believes that the Department will be able to cope with environmental health problems of the future by implementing the following recommendations.

We recommend that the Department:

1. Establish a surveillance and warning program which will, through basic research, identify current and potential problems, and determine the effect of these problems on man, thus giving the Department the continuing supply of scientific knowledge necessary to protect man from environmental injury and aesthetic insult. (Chapter III, page 34)
2. Establish an environmental design program which will establish criteria and dual-level standards for individual hazards and combinations of hazards under varying conditions of geography, population, industrialization, economics, and technology, with one level being the minimum health level acceptable and the other being a desirable level which can be achieved in a specific number of years. (Chapter III, page 36)
3. Establish a technological development program using contracts with industry in conjunction with Departmental activities and grants to institutions so as to bring about the technological improvement necessary to reach the desirable environmental quality levels. (Chapter II, page 37)
4. Establish an inter-governmental compliance program using Federal functionally oriented grants-in-aid free of formula and allocation

restrictions in conjunction with Federal technical assistance teams to obtain comprehensive plans and action from State and local governments consistent with national goals and objectives. (Chapter III, page 39)

If this Environmental Protection System is to succeed, specific immediate objectives need to be reached.

The Task Force recommends:

1. Development by 1970 of a nationwide surveillance system necessary for identifying levels of pollutants and components of pollutants in air, water, and soil. (Chapter III, page 34)
2. Establishment by 1970 of criteria for individual and combinations of chemicals discharged into air, water, or soil. (Chapter III, page 37)
3. Require by 1969 the filing of five-year comprehensive environmental health plans from State and local governments receiving funds from the Department. (Chapter III, page 39)
4. Creation by 1968 of a permanent technical assistance unit within the Department which can provide multi-disciplined teams of specialists to be available to State and local governments at their request to aid in planning and implementing environmental health programs. (Chapter III, page 39)
5. Determination by 1969 of the manpower requirements necessary to adequately supply both public and private sector needs for environmental program operations beginning in 1972 and beyond, and the means of supplying such needs. (Chapter III, page 41)
6. Establishment by 1968 of an integrated effort for health education and general education to create a public understanding of its environment and an increased awareness of the individual and social responsibility in reference to it. (Chapter III, page 44)

## OTHER RECOMMENDATIONS

The foregoing recommendations deal with goals and strategy. In addition, however, are the following recommendations which relate to the goals and the protection system. Those having the highest priority are listed here.

The Task Force recommends the Department:

1. Urge the President to call a White House Conference on Financing Local Government to explore ways for cities and other units of local government to raise adequate funds to finance essential governmental activities on a metropolitan and regional scale. (Preface, page vii)
2. Urge the President to seek Congressional authorization to create a Council of Ecological Advisors to provide an overview to assessment of activities in both the public and private sectors affecting environmental change, and to act in an analyzing capacity, to be in a commanding position to advise on critical environmental risk/benefit decisions, and finally, to be instrumental in the shaping of national policy on environmental management. (Chapter I, page 6)
3. Seek authority to provide air pollution program grants only to those control agencies which develop emergency plans that would control combustion activities under certain air pollution alert conditions. (Chapter II, page 13)
4. Accelerate within the Department of Health, Education, and Welfare a national family planning program to disseminate family planning information to all requesting State and local health agencies, physicians, private associations, and individuals. (Chapter II, page 17)
5. Develop urban and rural model codes and suggested standards for the prevention and control of various sources of noise in the environment. (Chapter II, page 19)
6. Contract with appropriate universities and/or research institutions for the establishment and operation of a facility for large scale, long term, health related studies in human ecology. (Chapter III, page 29)
7. Undertake a grants program for the establishment and support of university-based centers for ecologically-oriented environmental health studies. (Chapter III, page 29)
8. Create through contracts a non-profit research organization using experts in a wide variety of fields to respond exclusively to the Department's need for problem-solving in the health and environmental health areas. (Chapter III, page 30)
9. Establish an Office of Assistant Secretary for Research and Development so that activities within, or supported by, the Department are integrated into a total systems approach and provided with overview, direction, and control. (Chapter III, page 30)
10. Provide grant-in-aid or contract support for the establishment and operation of urban sociological health research centers in major metropolitan areas. (Chapter III, page 32)
11. Establish units of the Department of Health, Education, and Welfare in other Federal agencies to provide liaison to those agencies and an assessment of the effects of their programs on man's environmental health and welfare. (Chapter III, page 40)
12. Provide fellowships for in-service training and continued education for Departmental personnel in the environmental health field. (Chapter III, page 42)
13. Promote the establishment of programs and curricula in clinical and human ecology through grants to the Nation's professional schools, such as schools of medicine, law, public health, and public administration. (Chapter III, page 43)
14. Provide fellowships for State and local personnel to permit them to continue their education in environmental health fields. (Chapter III, page 43)

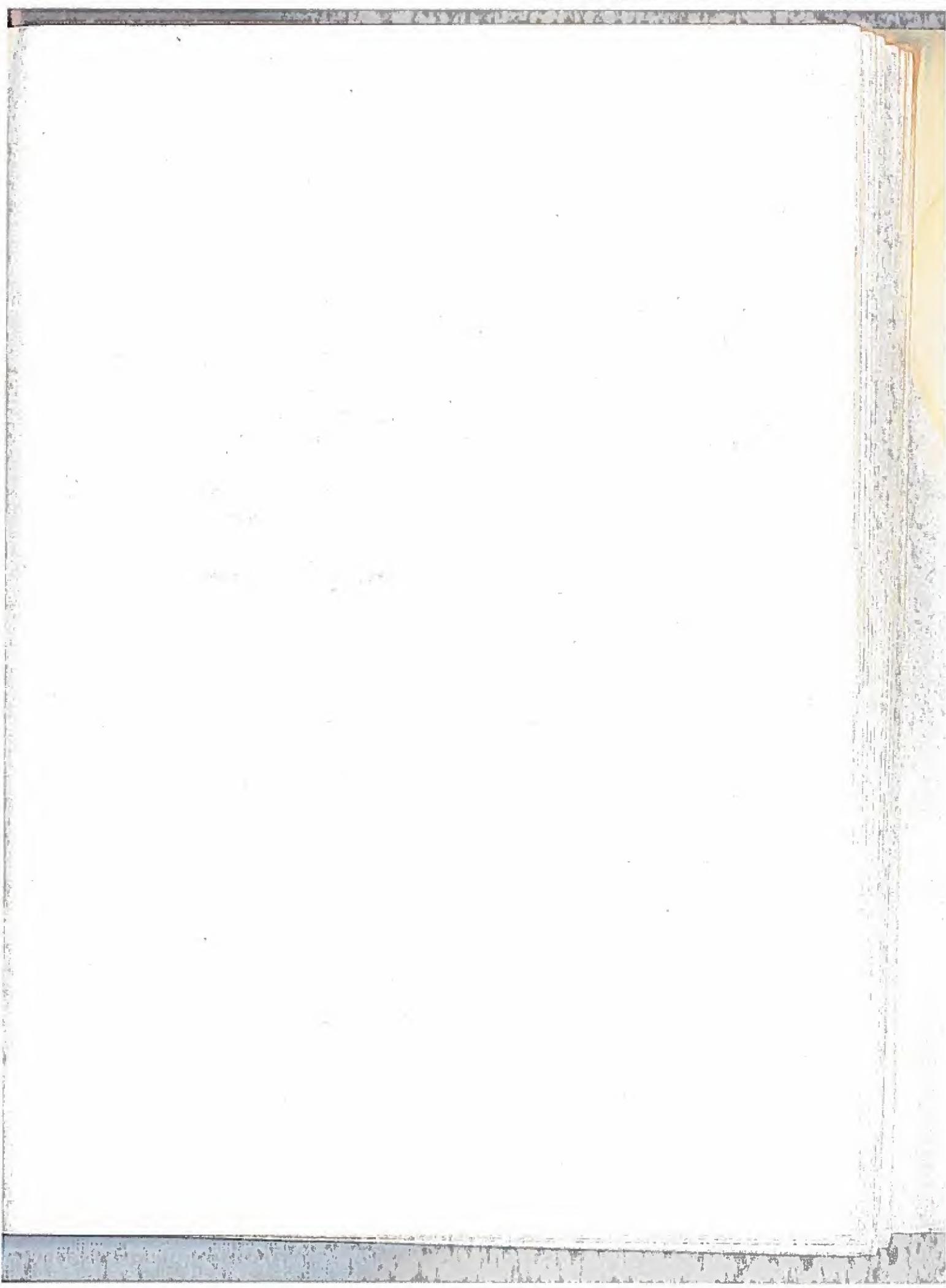


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## **Chapter I**

# **THE ENVIRONMENT**

AT THE TWO-THIRDS POINT of the 20th Century, man has discovered that he cannot act toward his surroundings with the abandon of a caveman. For countless thousands of years, man has treated this planet as a dumping ground, boundless in its ability to absorb insults.

But now, the factory smokestack and the automobile tailpipe, symbols of industrialization and exploding population, combine to foul air, land, and water, and to change in both obvious and subtle ways the quality of life.

For generations we assumed Nature had the ability to absorb an increasing number and variety of environmental insults. And for a while it did. Now nature has rebelled. The lashback today threatens metropolis, town, and village, and to a growing degree open countryside as well. Sadly deficient in precise knowledge of the growing and changing array of hazards in our environment, we know enough to realize that we must mend our ways.

We cannot keep adding more wastes in the air.

We cannot turn more rivers and streams into open sewers, and lakes into cesspools.

We cannot befoul the land with the discards of abundance.

In short, we cannot engage in biological and chemical warfare against ourselves. Our health and well-being—and those of future generations—are at stake.

Man lives in delicate equilibrium with the biosphere—on the precious Earth-crust, using and re-using the waters, drawing breath from the shallow sea of air. While these can cleanse themselves, they can do so only to a finite point. That point is being reached and passed in many places in the United States. It is not only necessary that we take preventive action, it is also urgent that we take steps to restore the quality of our environment.

The public will have to understand the limitations of Nature. Understanding begins if we think of the Earth as somewhat like a submarine or a space capsule. Air and water supplies in all three places, are limited. Some of us understand what is required to survive and work effectively in hostile cosmic regions or deep in the sea. All of us must understand what is required to live in the finite capsule of air, water, and land that is our own environment.

### **Present Situation**

This Chapter outlines the background against which the Task Force recommendations were made. The Task Force has examined the history

of environmental health problems and has scanned the broadest possible variety of these hazards to Americans.

It has reviewed the current condition of man's living space. When viewed in its fullest context, the rapid deterioration of finite amounts of water, air, and soil makes it clear that present trends cannot be permitted to continue. In fact, they must be reversed.

Not only should the rate and direction of environmental pollution be changed, the citizenry also needs protection from a conglomerate total of environmental health threats—not only air and water pollutants, but also combinations of these, plus noise and crowding, safety hazards, and other factors.

An individually-acceptable amount of water pollution, added to a tolerable amount of air pollution, added to a bearable amount of noise and congestion can produce a totally unacceptable health environment.

It is entirely possible that the biological effects of these environmental hazards, some of which reach man slowly and silently over decades or generations, will first begin to reveal themselves only after their impact has become irreversible.

Thus, one paramount conclusion resulted from the many diverse lines of inquiry which the Task Force pursued: An effectively coordinated environmental health protection system is mandatory, one predicated on the basic premise that the environment affects man's mental as well as his physical health and welfare. Any approach toward environmental health protection which is limited to concern for less than the total range of hazards that do or may exist in man's environment must be viewed by the Department as inadequate.

The problems arising from our productivity and growth are truly unprecedented. No other nation has produced so many things for so many people.

The history of our exploitation of the environment since early last century reveals many

examples of misuse and abuse and unsuccessful attempts to control the environment. From an agrarian economy concentrated along the East Coast, the country grew into the breadbasket of the world; from a handful of mills along tumbling New England rivers sprang an industrial giant that has no equal in all the world. To serve this industrial revolution came the skilled and unskilled from far and near to cluster into the growing cities. Through the wonders of research and the marvel of mass production came new products and new processes—all adding up to a higher standard of living than the world has ever known.

Today's world is profoundly different from that of even a few decades ago. But progress has been purchased at a price: a million traffic fatalities since World War II; cities bathed in a sea of pollution; lives stressed by noise, squalor, and crowding.

Our mode of living requires that we travel, so we accept the risk of being maimed or killed on the highway or on city streets. Some 50,000 die each year from traffic accidents. However, the driver or the pedestrian has some control over his safety. He can readily appreciate the acute nature of the danger to his life and limb. But many environmental hazards are more subtle and are beyond an individual's perception and control.

Neither the growth of metropolitan populations nor their accelerating dependence on fossil fuels for energy and motor vehicles for transportation serve to explain fully why many cities have reached or are approaching a crisis in air pollution.

To understand the situation we need to look at the dynamics of free air.

It might at first seem that there is enough air to absorb whatever insults man might hurl at it. However, when pollutants are released to the atmosphere, the degree of mixing is confined to the lowest levels of the air mantle. Luckily this air, especially in the United States, is usually in

motion. Consider what happens when pollutants are released.

Under normal conditions, the atmosphere has a large capacity to cleanse itself. Nuclear testing has given us knowledge of the global transport of air masses. Radioactivity from atomic bomb tests in the Lop Nor desert of Sinkiang Province in China can be detected in the United States because the air mass circulates around the planet in a matter of weeks.

When the winds stop blowing, local pollution hazards can increase. Technically, one talks of an atmospheric stasis which means a calm condition or dead air. Given a prolonged stasis, the pollutants concentrate in the lowest levels of air and then trouble begins. This is most common during the fall and winter when there is less sunlight. Then the ceiling tends to dip closer to the ground so that under conditions of a temperature inversion the mixing air is confined to a layer approximately 2500 to 1500 feet above city streets and factories.

### ***Future in Doubt***

It is difficult to predict future levels of sulfurous air pollution from the burning of fossil fuels, because such a prediction must be predicated on assumptions about trends in fuel use and advances in pollution control technology. Authorities agree that premium fossil fuels will be in short supply in the foreseeable future and that reliance will have to be placed on coal. According to one authoritative estimate, continuation of present control practices would see a 100 percent rise in sulfur levels by 1980 as a result of increased consumption of sulfur-bearing coal and oil; that is from a present level of 24 million tons per year to 48 million tons annually. If even the most rigorous control technology were developed and applied, sulfur emissions by 1980 would reach an estimated 32 million tons per year. Electric power plants, which account for about half of the sulfur discharged to the air as a result of fuel burning, will continue to be a major source of sulfurous

pollution long after nuclear energy becomes a mainstay source of electric power, simply because so many coal and oil burning power plants will be built in the next 25 years to supply rising demands for electricity.

Without nuclear power and without controls, the year 2000 would look very black from a pollution standpoint. Then the sulfur dioxide pollution would amount to 75 million tons from power-plants alone (annually). Long before that time, without benefit of controls and nuclear power, Americans would have to restrict their use of electricity or pay very much more for the kilowatt because of the scarcity of cheap low-sulfur coal and oil.

Efforts to bring an end to environmental hazards often have proceeded without adequate attention to their effect. For example, the development of efficient braking systems for motor vehicles—surely a life-saving technological achievement—has led to increased exposure of the public to asbestos particles produced by the gradual wearing of brake linings. There is scientific basis for concern that these particles may promote lung cancer over long periods of time.

Similarly, the change from hard to soft detergents, a move aimed at reducing a serious water pollution problem, led to the introduction into the environment of a new compound which is believed to be killing large numbers of fish by attacking their eggs.

In essence, then, the changes that have occurred in this country as part of its transition from a small agrarian nation to an urbanized, industrialized world power have given rise to environmental problems which we understand but little. This limited understanding has caused a failure of our society to recognize the full impact of environmental hazards on human health and welfare, and it has led to sporadic, fragmentary efforts to meet some of the most flagrant of environmental problems.

We stand at a point in history when our capacity to enhance or degrade the environment

is literally beyond reckoning, but we do not now fully understand how to use this capacity for the benefit, rather than the harm, of our and future generations.

Not only have we overwhelmed many of nature's processes for environmental stability, we have misused, without knowing it, biological processes upon which the preservation of life depends. By allowing tiny amounts of pesticides to enter our waters, we have set in motion processes that can lead to the destruction of birds that feed on fish, that feed on plants, that draw the pesticide from the water. Our ignorance of the consequences of our deeds may be innocent, but it is ignorance we can no longer tolerate.

Nor are the effects of environmental change manifested solely in threats to man's physical well-being. The pressures of our industrial culture must certainly produce threats to social and psychological welfare. Less difficult to measure, perhaps, these psycho-social effects of environmental hazards are nonetheless cause for concern in a Nation where mental and social ills are recognized as major problems. Are they not to a significant degree major environmental problems? It seems certain that they are.

#### ***Additional Evidence***

Man's affluence has its source in the extraction and exploitation of natural resources. But the use of these resources has resulted in an environment abused. Strip mining has left ulcers on the land. Our forests have been emptied of their timber. Dust storms of the thirties recall the price of land neglect. Chemical agriculture has laid down a barrage of deadly insecticides, fungicides, and herbicides to kill off plant pests and diseases; but the residues infiltrate the food chain. Banks of rivers are littered with the accumulated debris of fish kills due to these water-borne residues.

In a recent report dealing with the increasing pollution of the air, water, and land, the National Academy of Sciences National Research Council stated: "Pollution is an undesirable change in the physical, chemical, or biological characteristics of our air, land, and water that may or will harmfully affect human life or that of other desirable species, our industrial processes, living conditions and cultural assets; or that may or will waste or deteriorate our raw material resources . . . Pollution increases not only because as people multiply, the space available to each person becomes smaller, but also because the demands per person are continually increasing, so that each throws away more year by year. As the earth becomes more crowded, there is no longer an 'away.' One person's trash basket is another's living space."

The trends of population expansion and urbanization will continue to funnel increasing loads of pollutants into the environment and will place increasing strains on both health and environment-protection resources.

In 1900, the population of the United States was seventy-six million, and—though our cities were steadily growing at that time—urbanization was still a trend of the future. Our population today approaches 200 million and may reach 235 million by 1980. Already, nearly three quarters of this Nation's inhabitants are densely packed into 200 urban centers. Demographers estimate that before the next turn of the century, "super-cities" will stretch from Boston to Washington, Buffalo to Milwaukee, San Francisco to San Diego. The problems of these huge urbanized land masses will be vastly greater than those of the present cities.

The impact of population growth, technology, and urbanization on man's environment is accelerating. There is no sign of any stability or plateauing in man's collision with his environment. As people crowd more densely together, the environment changes with increasing effect—often unpredictably, and what is most serious of all, possibly irreversibly.

### **Inadequate Effort**

The United States needs to take stock of its environmental condition and to recognize the urgency of the situation.

Americans make more things than other people, and they make far more than half of the world's trash. This year's rubbish would fill 36 lines of box cars stretching from coast to coast.

Ours is a mobile society. Think, for example, about the advances made in locomotion. Before the beginning of the 20th Century, an ambling railroad train provided man's fastest regular means of transportation. The Wright brothers' flight in 1903 was shorter than the distance from wing tip to wing tip of today's jet transports. This year Americans will fly a total of 70 billion passenger-miles in commercial airliners at speeds up to 650 miles per hour. We are now planning to fly the Supersonic Transport (SST) nearly three times that fast.

This year, the 90,000,000 motor vehicles in use will burn an estimated 60,000,000,000 gallons of gasoline; or about 700 gallons for the typical automobile. This means that each automobile in the country will discharge in a single year over 1,600 pounds of carbon monoxide, 230 pounds of hydrocarbons, and 77 pounds of oxides of nitrogen.

Even though the potential deleterious effects of radiation have been known for several decades, recent incidents concerning uranium miners indicate the general gaps in our understanding of the need to control radiation hazards in the environment. At the present time many uranium miners in the United States are being exposed to excessive amounts of radioactive gases. These gases decay into radioactive daughter products and by attaching to particulate matter in the air, enter the miners' lungs. Such exposure has produced a marked increase in the incidence of lung cancer among uranium miners. With this situation existing for many years, the Federal Radiation Council has nevertheless failed to come forth with standards for the occupational exposure of uranium

miners. Approximately 10,000 miners have been employed for some period in underground uranium mines prior to January 1, 1967. Dr. Leo Gehrig, Deputy Surgeon General of the Public Health Service, estimates that 529 of these miners will die of lung cancer. Now we realize, too late, that over a thousand such miners in the United States have been exposed to cancer-producing radiations which may be expected to reduce their life expectancy by several years.

Infectious hepatitis appears to be directly related to contaminated drinking water, but very little is known about how the disease-causing agent gets in the water or how it can be taken out.

Traces of cobalt were used in beer manufacturing for foam control, and when the side effects of cobalt were fully examined, the practice was rapidly stopped. But no one knows what the total effect of that foamy-cobalt interlude on the public will be.

The Food and Drug Administration has estimated that the American people are being exposed to some 500,000 different substances, many of them over very long periods of time. Yet fewer than ten percent of these substances have been catalogued in a manner that might provide the basis for determining their effects on man and his environment. Again, our ignorance of potential hazards is perilously great.

### **Too Little Known**

Too often, the undramatic nature of an evolving health hazard has kept it off page one and out of news broadcasts.

Public information usually focuses on dramatic disclosures or on pollution episodes where an acute health hazard results. For this reason, most people have some knowledge of smog, fallout, fish-kills, and drug abuse.

Modern technology brings man into contact with a vast array of substances and processes new to the human race which have the potential of causing new health problems.

Man is not defenseless against the onslaught of modern technology. Knowledge gained through research—and applied—can enable him to deal with the great majority of environmental hazards. But he is still a long way from adequate understanding of the intricate web of life which links plants, animals, and man.

Health experts have repeatedly pointed out that grave, delayed physical manifestations can result from repeated exposure to concentrations of environmental pollutants so small that they do not make one ill enough to send him to the doctor. Environmental pollutants can have cumulative effects, especially because they accumulate in certain tissues and organs.

These effects can take delayed forms such as cancers, emphysema, and reduced life span, and they can even extend to following generations. In other words, the most serious effects of pollution may be those whose effects are delayed and subtle—those which we do not fully appreciate or take steps to prevent.

We have learned how to enclose a hundred men in a metal capsule and keep them healthy for prolonged periods of time below the surface of the ocean. In these nuclear submarines men live only a few feet from a nuclear power plant. They live in a closed system which is carefully organized and monitored to provide a compatible environment. Even more stringent life-support systems are required for manned spacecraft.

People on Earth must begin to think of their planetary home as a closed system—as a kind of huge spacecraft, which, in fact, it is.

The thrust of the Task Force's Report is that we must begin to manage all aspects of the environment so as to ensure the physical and mental well-being of the American people.

### **Overview Essential**

Since the environment and man's relationship to it are so complex no simple solution or simple approach can be sketched out which will allow

the Federal Government to correct overnight centuries of misuse.

The tools available to the Nation to do the job are insufficient. Jurisdictional disagreements among those responsible for environmental protection create problems and too often inaction. Nowhere is there the capability of making the enlightened assessments of policy affecting the environment as there are assessments of policy affecting the economy.

Yet one is no less important than the other. A weak economy means human distress. A diseased environment also means human distress.

The Task Force recommends that the Secretary of Health, Education, and Welfare, as a major step toward meeting the challenge of environmental protection, urge the President to seek Congressional authorization to establish a Council of Ecological Advisors to provide an overview, to assess activities in both the public and private sectors affecting environmental change, and to act in an analyzing capacity; to be in a commanding position to advise on critical environmental risk-benefit decisions; and finally, to be instrumental in the shaping of national policy on environmental management.

Even the abbreviated effort which the Task Force has made to examine the nature and extent of the Nation's environmental problem leaves no doubt that there must be a radical increase in the national commitment to protection of man's health and welfare from threats—present and future—in the world about him. The recommendation above is but one of many presented in this report. To all of them the Task Force assigns the highest order of importance.

The practice of medicine is becoming more and more imbued with the concept of treating the whole man, not merely a collection of his symptoms. This same concept is urgently needed in our efforts to deal with problems of environmental health.

Our orientation must be to the total man in his total environment, to the cumulative effects of a growing number of environmental hazards on a receptor—man—who can respond to them in an incredibly complex manner. It is not sufficient to narrow our interest to the effect of air pollution on the lungs, the effect of noise on the ear, or the effect of crowding on the psyche. We must identify the interrelationships of these and all other forms of environmental insult on the whole man, on his physical and mental

health, his productivity, and his ability to enjoy the fruits of our culture.

This reorientation cannot be accomplished in a day, perhaps not in a year. But it can begin immediately. What follows in the next Chapter is a statement of Action Goals for the Department of Health, Education, and Welfare, goals which the Task Force feels can and must be met promptly if this Nation is to begin the march toward a program of environmental protection consistent with our capabilities, needs, and aspirations.



## Chapter II

### GOALS

EVERY DAY millions of Americans find life around them in some way unpleasant. For a growing number, concern about air pollution and dirty water feeds an emerging awareness that man's own hand is spoiling his natural habitat.

Whether directed at air or water pollution, a new form of pollution such as noise, crowding, or the harmful effects of trace metals, whether seen as a health threat or an aesthetic insult, the concern is that something be done now.

Environmental problems affecting the physical and mental health of people, their welfare, and their aesthetic values, did not emerge simultaneously as one. They emerged here and there with no seeming interrelationship, growing at varying rates and creating different degrees of public concern, each in its own right. Each then was solely considered and separately attacked.

Today we realize, as the environmental problems multiply and become more critical, that these problems must be dealt with as one.

Goals must be set for the solution of interrelated environmental problems.

First, there must be an overall health goal for the Department of Health, Education, and Welfare. Second, this primary goal must be related to a policy commitment toward elimination of environmental contamination. Third, there must be program goals for the reduction

of specific contaminants. The most important goals are those which, if achieved, will reduce or eliminate these problems.

To provide for the optimum health of the American people is a primary goal of the Department. To achieve this goal, the Department must cope with threats to human life that grow out of a deteriorating environment.

To cope with such threats, the Department must establish clear, achievable goals and a strategy for their attainment.

Having set goals, it may then measure progress in meeting them. The Department must define its role, enunciate it, and act upon it.

Because the Department's most important concern is people, it must constantly seek to protect the people from the effects of technological changes which could do them harm.

The Task Force believes that in restoring the quality of the environment and protecting it against further assaults, the Department must concern itself with aesthetics as well as physical and mental health, because it believes there is an inseparable relationship among health, welfare, and beauty.

The Department must direct its energies toward developing an efficient means of controlling environmental problems. The emphasis should be on prevention. Eliminating health hazards entirely may be costly and unneces-

sary, if they can be reduced to a level at which they no longer threaten health or offend the senses.

The Task Force recommends that the Department's purpose for environmental concern be to ensure that every American can thrive in an attractive, comfortable, convenient, and healthy environment by controlling pollution at its source, reducing hazards, converting waste to use, and improving the aesthetic value of man's surroundings.

This purpose provides direction, but not action. It states policy, but it does not define objective accomplishments. To be meaningful, the purpose must be supported by Action Goals which set out what must be done, how it is to be done, and when it is to be done.

Currently, Departmental goals spring from the operating environmental health programs themselves, and range from the extreme of complete absence of specific objectives to over-complicated specific objectives. These objectives have too little relationship to one another and are too numerous to guide an onslaught against the totality of environmental threats. They are a collection of conflicting bits and pieces of policy.

The goals set by the Secretary must be based on information supplied by the operating agencies, but this fact should not inhibit the Secretary from deciding the composition and priority of goals.

The Task Force was often advised by environmental health technicians during its study that goals must be set at the lowest policy level. But the condition of the environment and the difficulty the Department has in defining its role in correcting this condition are strong evidence that goals should come from the highest policy level. The Secretary himself must set priorities and make decisions on the allocation of resources to achieve the Administration's goals in environmental health. He alone has that responsibility.

The Task Force considered the advisability

of setting a series of individual long-term goals, but this idea was rejected because changing conditions will limit goals aimed years ahead, perhaps before it is even known whether such goals are achievable.

However, even if the goals recommended by the Task Force should become outdated before they can be achieved because of the development of new information and new techniques, we believe that a start must be made based upon the best information and techniques available today.

In the Goals recommended here, consideration also was given to the problems which exist now or will exist if no action is taken. Air pollution is a problem today. Something must be done today. Noise will be a problem tomorrow again unless something is done today.

In each instance, the Task Force has attempted to tailor its recommendations to fit existing statutory authority and to keep costs to a minimum.

In considering some hundreds of goals for environmental quality, the Task Force selected ten which should be assigned the highest priority by the Department. The Task Force believes these Goals present the greatest urgency, offer the greatest opportunity for accomplishment, require the least change by the Department in its manner of operation, and fall within the limits of financial resources which could be available to the Department.

#### Air Quality Restoration Goal

The problem of air pollution is justifiably the public's principal present environmental concern. Not only is air pollution clearly out of hand in all the Nation's metropolitan areas, it is also an increasingly serious problem in thousands of smaller communities and in rural areas. Moreover, the public has come to recognize that polluted air is much more than an annoyance. Scientific evidence linking air pollution with major respiratory diseases and with

extensive economic losses is now widely understood and accepted by the public.

Therefore, the Task Force recommends that the Department undertake an effort to initiate by 1970 in 75 interstate areas abatement plans to reduce plant stack emissions by 90%, and to establish national standards to reduce vehicle exhaust emissions by 90% from 1967 levels through enforcement and a technological development program to provide the equipment necessary to meet the standards.

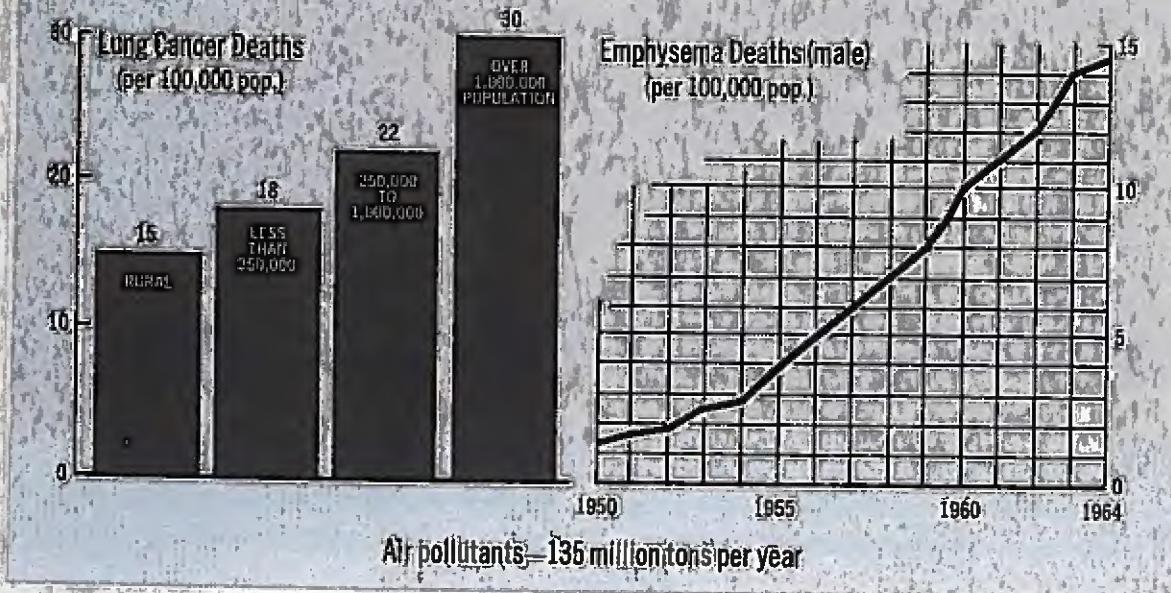
The Task Force feels strongly that the Department's response to the air pollution problem is inadequate, and that the Department must make vastly greater use of the authority it now has to bring about a restoration of air quality.

The powers granted the Secretary under the Clean Air Act and amendments to it are sufficient to permit a necessary acceleration and expansion of the Department's activities to control air pollution. The Secretary already has

the authority to institute air pollution abatement action in interstate areas when he has reason to believe that the public health or welfare is endangered. The Task Force urges that the Secretary make effective use of this authority to require that abatement plans be developed in 75 interstate areas now believed to be experiencing significant air pollution problems (appendix IV-A). In many of these areas, precise information on air pollution sources and on levels of pollution in the air is lacking. The Department should see that such information is developed, either through direct Federal effort or in conjunction with the efforts of air pollution control agencies in the areas involved.

In this connection, the Task Force recognizes that the abatement plans called for by the recommendation need not be developed by the Department; there is no sound reason why such plans could not be developed and implemented entirely through State and local action, in line with Federal criteria and standards.

## Bigger Cities ► More Air Pollution ► More Deaths



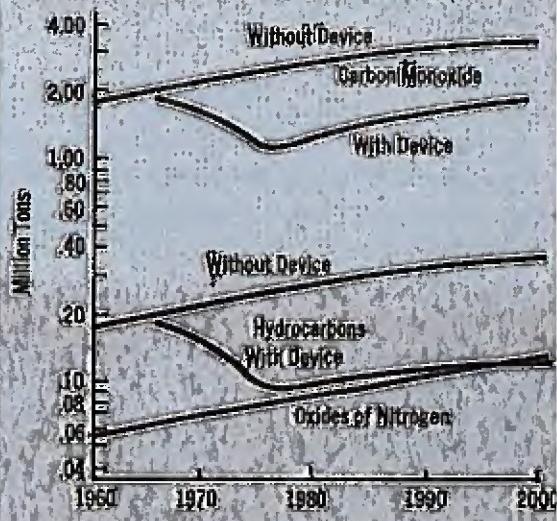
It is clear, however, that plans for abatement of air pollution, whether Federally developed or not, must strive for the full use of available means for reducing major air contaminants discharged from stationary sources of pollution, specifically including particulate matter, oxides of sulfur, hydrocarbons, and oxides of nitrogen. Each plan will determine the extent to which various stationary sources will reduce emissions to achieve the 90% total reduction. The technological means of achieving a 90% reduction in each of these classes of pollutants are not equally well developed. However, the Task Force feels that sufficient technical knowledge now exists to set and strive to achieve the recommended goal. Additional emphasis should be placed by the Department on support and encouragement of developmental research to bring needed progress in control technology for those pollutants, especially oxides of nitrogen, for which control measures are lacking.

The portion of the recommendation that deals with vehicle emissions also is ambitious but achievable. The Department has already issued regulations limiting the discharge of hydrocarbons and carbon monoxide from new 1968 vehicles (passenger cars and light trucks). The automotive industry has developed the means of meeting these Federal standards. In its meetings with air pollution and automotive industry officials, the Task Force was given no reason to doubt the need for higher standards of control nor the possibility of achieving them in the very near future.

Industry's ability to meet the Task Force's recommendation will mean that by the year 2000, allowing for a great increase in the number and use of motor vehicles, the average level of automotive emissions will be substantially lower than it was in the year 1950.

The Task Force still urges the Department to encourage and support research on alternatives to gasoline as a source of power for motor vehicles, even though alternatives may not be necessary for decades. At the same time, the Depart-

## Annual Motor Vehicle Emission



ment must intensively investigate the environmental effects of possible alternatives, such as electric-powered vehicles.

The thrust of the Task Force's air quality restoration recommendation lies in two critical directions: First, it aims at taking full advantage of opportunities that now exist to bring about a reduction in air pollution level throughout the country, most especially in those interstate areas where the problem is most acute; second, the recommendation aims at gaining sufficient time to carry out the needed basic developmental research that will be required to meet the air pollution problems of the future, which may well be radically different from those of today in both scope and character.

An undertaking as broad as that proposed can be guided by the Department, but not achieved by it alone. The Department will have to encourage greater effort on the part of industry and State and local agencies of government. Both of these issues are discussed elsewhere in this Report. It is appropriate to include at this point, however, a recommendation concernin-

increased governmental action pertaining specifically to the air pollution problem.

The Task Force recommends that the Department seek authority to provide air pollution program grants only to those control agencies which develop emergency plans that would control combustion activities under certain air pollution alert conditions.

There can be no question that the public must have immediate protection when adverse meteorological conditions or other factors threaten an air pollution disaster. Prevention or mitigation of such disasters requires only the exercise of well recognized police powers. The Department, by adopting the recommendation, could see that these powers are employed to protect the people from needless repetition of the air pollution tragedies of the past.

#### Water Quality Goal

Fifty million Americans drink water that does not meet Public Health Service drinking water standards. Another 45,000,000 Americans drink water that has not been tested by the Public Health Service. Alarming as this situation sounds, it could easily be either more—or less—ominous, since the Task Force is not satisfied that the present Public Health Service standards for drinking water adequately reflect the health needs of the people.

Therefore, the Task Force recommends that the Department undertake an effort by 1970 to test all existing and proposed public drinking water supply systems and produce meaningful public drinking water standards which, through an enforcement program, will ensure health-approved drinking water for 100% of the Nation's public systems.

Water-borne disease in the United States is apparently controlled and declining. However, reporting of information on illness associated with drinking water is grossly inadequate. Moreover, there is virtually no information available or being systematically sought on the health implications of trace substances in drink-

#### Quality of U. S. Drinking Water

105 million people . . .

drink water  
that meets  
Federal  
Standards

95 million people . . .

drink water  
that is below  
Federal  
Standards  
or of unknown  
quality

ing water which may produce disease only after a very long period of time.

Present Federal authority to inspect and certify drinking water supplies and systems is severely limited. The Public Health Service is responsible for testing and certifying water supplies used by interstate carriers and by ships and aircraft that touch the United States (Appendix IV B). Rising air, rail, and bus traffic in recent years has made it necessary for the Public Health Service to assume regulatory jurisdiction over an increasing number of water supplies, now estimated to serve some 80,000,000 people. However, these systems are inspected an average of only once in three years, and about one-fifth of them now enjoy only provisional approval from the Public Health Service. If the experience of this Public Health Service program is indicative of the drinking water quality of the entire Nation, then about 6,000 of the 19,000 public drinking water systems of the United States are not able to meet Federal standards for the quality of drinking water.

The transfer of the Federal Water Pollution Control Administration to the Department of the Interior left the Department of Health, Education, and Welfare with the responsibility for the health aspects of water pollution and water pollution abatement. Thus, the Department has a major legal responsibility for the safety of the water that Americans drink. The Task Force finds, unfortunately, that the people can and should have serious concern about the current ability of their Federal government to determine whether water is safe to drink, and if it is unsafe, to do anything about it.

The Task Force feels that the Department will have to undertake a fundamentally new and enlarged approach to protection of the public from environmental health hazards actually or potentially present in drinking water supplies. To begin with, present standards for water quality should be thoroughly reviewed to determine their appropriateness in the protection of health. Secondly, the Department should undertake the testing of all public water supplies to determine whether they meet Federal standards. Finally, the Department should make certain that any public water supply that fails to meet Federal standards is promptly brought up to those standards.

The Task Force suggests that the Department of Health, Education, and Welfare develop a grant-in-aid program to States and local governments to plan, build, or improve regional water supply systems, provided the recipient is willing to meet minimum Federal standards. It is estimated that a 5 year, \$500 million Federal program would enable all of the 6,000 deficient municipal water supplies to meet minimum Federal standards.

The Department of Agriculture, through its Farmers Home Administration, and the Department of Housing and Urban Development, through its Land and Facilities Administration, are helping upgrade water supply facilities with their loan programs to municipalities.

These loan programs to rural communities

for water systems began in 1961. Since then, Farmers Home has brought good water to 1,100,000 people in 1,588 rural communities at an investment of \$240 million in loans. This agency estimates, however, there are at least 30,000 rural communities without water systems or with inadequate facilities that still need help.

And, even though the Department of Housing and Urban Development is authorized to make public facilities loans to communities for water systems, only a small number of loans for all water systems have been made since 1956 because of a shortage of loan funds.

The Department of Housing and Urban Development is also authorized to make grants to communities to build water and water-related systems. Some 143 communities received such grants in 1967. But twenty applications were received for every grant awarded. Because of budgetary limitations, no grant larger than \$1.5 million was made. All of these programs should be carried out in cooperation with the Department of Health, Education, and Welfare from the standpoint of assuring that adequate health standards are met.

#### **Waste Disposal Goal**

The Task Force saw, again and again, that our Nation's burgeoning population and ever-increasing productivity have generated a rising tide of discarded organic and inorganic materials. This refuse is creating a huge and, as yet, unsolved problem of waste disposal.

Therefore, the Task Force recommends an effort to provide by 1973 a grant-in-aid program for solid waste disposal at the local level; a developmental research program to integrate solid and liquid waste disposal and air quality control; and for the disposal of nuclear wastes.

The President's Science Advisory Committee in its report "Restoring the Quality of Our Environment" and the National Academy of Sciences in its more recent report, "Waste Management and Control," have called for a new and

redoubled effort to find better methods of alleviating the national waste crisis. A steadily mounting burden of waste, handled in ways that endanger the public health and welfare and offend its aesthetic senses through environmental deterioration and excessive economic penalties, can no longer be accepted.

The increase of refuse generated by each person every day is accelerated with the appearance of every new product and process. Every urban rehabilitation effort, every expressway excavation, and every suburban housing development create new mountains of material to be disposed of by ancient and inefficient methods.

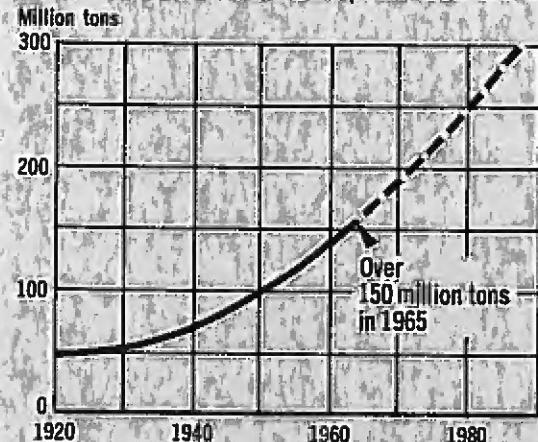
Not only is refuse increasing in volume, its characteristics are also changing. The problem yesterday was principally garbage and ashes. Today's rubbish includes everything from dead animals, industrial waste, demolition refuse, old appliances, construction refuse, and non-returnable containers to hazardous and special wastes such as those from hospitals or nuclear power plants.

In most large metropolitan areas, the refuse disposal problem has reached such proportions that available landfill areas are all but exhausted. The skies over bustling dumps are daily filled with black clouds from the open burning pyres—emissions that irritate the eyes, damage the lungs, and despoil the landscape.

And the problem will unquestionably get worse. The 165 million tons of solid waste spewed out into the air and discarded and spread over the Nation's landscape in 1965 will increase to 260 million tons in little more than a decade. Also, wastes which heretofore have largely been of degradable organic nature are now mainly (65 percent) non-degradable inorganic material. The 6 million automobiles scrapped in 1965 will double and perhaps triple before the turn of the century.

The Task Force envisions research into new avenues for waste recycling and disposal, and improving existing technology for the prevention

## Solid Waste Production in the U. S.



tion and control of pollution associated with waste disposal.

Basic in this respect is the desire of the Task Force to see Federal stimulation and leadership in the development of a total systems approach to improved methods of re-use or integrated disposal of solid, liquid, and gaseous wastes. Because some technological innovations are already in the pilot stage, and even in limited use in certain segments of industry and government, the Department's research capability should concentrate on providing the resources necessary to evaluate the health implications of this emerging technology and the potential for improved health.

Increased Departmental funding should be used to concentrate on establishing guidelines of good practice and technical criteria for presently acceptable waste disposal methods. Further, the Department should address itself to the development of standards of solid waste disposal to guide decision-making at all governmental levels.

The Task Force, in recommending this Goal, sees the need for:

—basic research into the health effects of waste and waste disposal techniques,

- the study of wastes as an element of disruption in the ecology of natural systems,
- a stepped-up research effort to secure breakthroughs in the re-use and disposal of solid, liquid, and gaseous wastes,
- a greater public awareness of its role and responsibility in curbing waste,
- a grant-in-aid program to assist State and local governments and private industry in establishing and maintaining adequate waste disposal systems,
- achievement of reduced levels of waste through improved packaging methods.

#### **Population Research Goal**

Virtually every assessment of environmental problems attributes them, in substantial measure, to the combined effects of increasing population (particularly urban population) and industrialization. Yet, the Task Force has found very little attention paid by environmentalists to the effect of population growth and pressure on the planning and conduct of environmental protection programs. This lack of attention to a major and dominating element in environmental protection efforts must be corrected, and the Department is obliged to take the lead in correcting a situation which seriously jeopardizes any attempt at improving environmental quality.

Therefore, the Task Force recommends an effort to determine by 1968 the effects of population trends on environmental protection goals and programs as part of the basis for setting Departmental objectives with respect to family planning and population dynamics.

Resources for the Future, Inc. has estimated that \$76.2 billion was spent for construction in 1960 and that \$120.3 billion will have to be spent in 1970 to accommodate population growth. The necessary construction required for 1980 will cost \$233.6 billion, and by the year 2000, it is projected at \$348.4 billion.

By the year 2000, the Nation's expenditures for schools, hospitals, highways, and public utilities will be three times what they are today.

If the public finds present traffic jams alarming, consider the future: In the year 2000, it is predicted that there will be 207 million persons 20 years old or older, and possibly 244 million vehicles, compared with about 90 million today.

By 2000, Americans will consume 33.7 million tons of canned foods and beverages, compared to only 16.7 million tons in 1960. If most of these containers are not reprocessed, we will grow short of resources to produce them while being buried under monumental piles of trash.

By the year 2000, some 475 million tons of paper and paper board will be used annually for packaging if present trends continue. There will also be 3.2 billion pounds of rigid or molded plastics used in packaging, materials that are much more difficult to dispose of than paper.

By 1980, to keep up with today's ratios of people to public space, we will need 49 million acres of national parks, monuments, and recreation areas, instead of our present 25 million considered by many as very inadequate. Also to keep pace, we will require 57 million acres of national forests, and 28 million acres of State parks.

The Task Force, particularly in its responsibility for looking as far ahead as possible, can not help but reiterate: The more people there are, the more critical environmental health problems are likely to become.

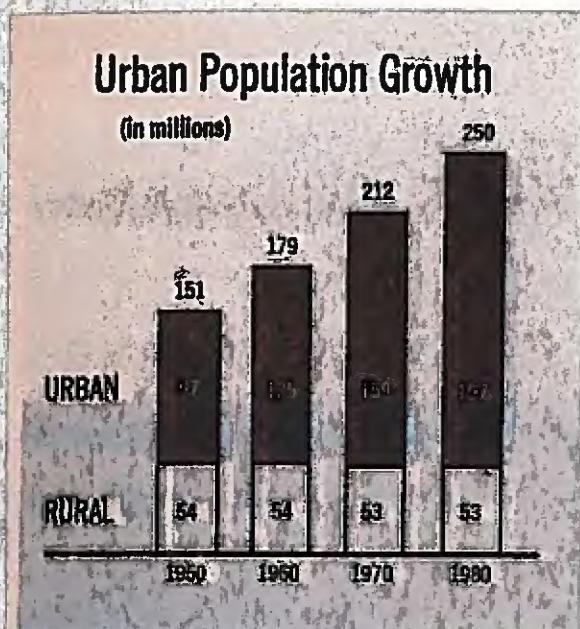
There is a tendency to see population problems merely in terms of over-population. So far as the United States is concerned, the Task Force found no reason to suggest that the country is over-populated at present, although this must be recognized as a potentially critical problem for the future.

For the present, population problems in the United States are more basically a function of over-crowding. As tens of millions of people are added to urban areas, the pressure of po-

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ulation has profound effects on environmental quality. Consider, for example, the severe drought experienced by the Northeastern United States over the past several years. Were it not for the fact that this region is densely over-populated, the period of drought might have had very little effect on the quality of the environment. As it is, the normal demands on supplies of water in the Northeast are so great and rising so rapidly that any reduction in normal rainfall carries the threat of crisis.

Thus, the Task Force feels that the Department of Health, Education, and Welfare must accept responsibility for leadership in a major effort to determine how population pressure affects environmental quality and environmental protection efforts and also seek to develop measures to reduce the adverse effects of population pressure.

Demographers and urban planners predict the development of a host of super-cities spanning huge geographic areas, such as from Boston to Washington and from San Diego to San Francisco. These are already among the most densely populated areas of the Nation, yet

virtually no effort is being made to explore ways of preventing the startling growth that has been predicted for them in the coming generation.

In the view of the Task Force, the Department of Health, Education, and Welfare will have to spearhead a research effort aimed at determining and perfecting measures to shift the focus of future population growth away from already crowded urban areas to parts of the country that are not now burdened by too many people. Unless such an effort is successfully launched, the environmental protection efforts planned today will be reduced literally to nothing by the sheer increase of people and their correspondingly increased demand for goods, services, and facilities.

In a sense, however, any effort to relieve population pressure by spreading the population more evenly over the land is only a temporary means of dealing with the problem of population growth. The Task Force feels that the Department may also be obliged to actively work toward a reduction in the rate of population growth through family planning.

Therefore, the Task Force recommends the acceleration within the Department of Health, Education, and Welfare of a national family planning program to disseminate family planning information to all requesting State and local health agencies, physicians, private associations, and individuals.

The present Departmental policy on family planning was stated to the heads of all operating agencies by the Secretary in January, 1966.

He stated that the policy of the Department is to conduct and support programs of basic and applied research on population planning; to conduct and support training programs; to collect and make available such data as may be necessary to support, on request, health programs making family planning information and services available; and to provide family plan-

ning information and services, on request, to individuals who receive health services from operating agencies of the Department.

Studies by parenthood planning groups indicate that, at any given time, approximately 5 million medically indigent women desire family planning assistance. At present, about 10% of this figure, or 500,000 women, now receive aid from public or private sources. The Department support for these present services, mainly through the Children's Bureau, was about \$3 million in fiscal year 1966 and will be more than \$5 million in fiscal year 1967.

Based on the above experience, the cost of providing services as recommended by the Task Force should be less than \$20 per woman.

To provide for the four and one-half million low-income women not now having access to family planning services could ultimately cost \$90 million a year. However, on the basis of pilot programs in North Carolina and Chicago, the birth rate will be reduced by about 70% among the medically indigent women receiving assistance.

In order for the Department of Health, Education, and Welfare to actively promote family planning programs at various levels, it must develop studies to identify all of the facets of the problem involved.

The Department should encourage surveys to produce statistical data on the attitudes and desires of individuals who have, or wish to have, or would rather not have, children. There should be increased research on the psychological as well as physiological effects on individuals who bear or support unwanted children.

The Task Force feels it is entirely possible that the Department will have to undertake, in addition to direct measures to facilitate family planning, programs to bring about a change in attitudes about the size of families. Such a shift in a basically personal attitude will not be achieved quickly or easily. However, it may prove to be the only way in which to make effec-

tive the Department's and other efforts to encourage and facilitate family planning.

#### ***Urban Improvement Goal***

The Task Force finds that today's urban environment is frequently placing severe physical and mental stresses on people. Cities are cramped and depressing. They fail to provide for man's needs for space and privacy. Noise, crowding, odor, and traffic hazards are facts of life to the urban citizen. We must stop to consider whether these facts are, in reality, insidious threats to his physical, mental, and social well-being.

Therefore, the Task Force recommends that, by 1973, the Department develop, through research, basic data sufficient to establish human levels of tolerance for crowding, congestion, noise, odor, and specific human endurance data for general stress and accident threats, including traffic, home, and recreation accidents.

The concentration of urban life is evidenced by the fact that approximately 70% of our population is crowding into urban areas representing 10% of our total land. Today, there are 140,000,000 people living on 35,000 square miles of land.

Our rapidly swelling urban areas are characterized by a variety of potentially hazardous by-products of population growth and prosperity which are of increasing concern. However, available scientific data on these stresses varies from the little we know about the deleterious effects of odor and crowding to the somewhat greater amount of knowledge we have about the effects of noise.

It has been proven that excessive exposure to high noise levels can impair hearing or cause total deafness, but we do not know how much of an effect day-to-day distractions of noise—interrupted conversation, disrupted work, disrupted sleep and so on—may actually have upon our health. The average human tolerance to

noise and how it relates to health, particularly mental health, is largely unknown.

The Task Force recommends that the Department develop urban and rural model codes and suggested standards for the prevention and control of various sources of noise in the environment.

Dr. René Dubos of the Rockefeller Institute in New York outlined our ignorance of the health effects of urban life on humans by telling the Task Force that:

*"You can go to any one of the thoughtful architects or urban planners . . . none of them knows what it does to the child to have a certain kind of environment, as against other kinds of environments."*

*"The whole process of mental development, as affected by physical development of cities, has never been investigated."*

The bare beginnings for the Task Force-recommended programs in urban contamination now exist and are slowly evolving in current Departmental activities. These are in the Office for Urban Environmental Health Planning of the National Center for Urban and Industrial Health, and in the National Institute of Mental Health.

What is now being done is negligible. About \$65,000 annually is now being spent by the Environmental Health Planning group for applied research on urban contamination, and about \$3 million by the National Institute of Mental Health for basic research.

Vehicular traffic is one of the most serious and complex urban irritants, and one of the most difficult to control. Vehicular movement is being directly superimposed upon the small-scale environment of man's ambulatory activities. It is recognized that unencumbered pedestrian flow within a neighborhood is essential for community identity and cohesion, and for a healthy social environment. The Task Force suggests that studies be undertaken to deter-

## Yearly Accident Toll

104 Thousand  
Killed

52 Million  
Injured

+ 16 Billion - annual cost



mine the impact of traffic patterns on social stress.

The Department should seek better understanding and management of the environmental factors contributing to traffic accidents and the psychological effects of other traffic stresses. The Department should promote a strong, co-ordinated research effort to establish vehicular driving tolerances.

The Department has taken the initial steps in this direction by establishing a Driving Research Laboratory in Providence, Rhode Island. This laboratory is equipped with two driving simulators which are being used to evaluate reactions and other capabilities of the chronically ill and physically impaired driver. But the effect of traffic movement on the driver and passengers of a vehicle also should be studied. Measurements of the physical and emotional stresses for the commuting driver, the local delivery man, and the transcontinental bus driver,

for example, are also needed to provide guidance for future urban development.

Removing urban contamination and promoting healthy urban growth form a potentially major field of research into environmental design. To date, research support has fallen far short of that required to develop those insights and principles upon which standards and guidelines for policy decisions must be based.

The Public Health Service and its National Institute of Mental Health estimate that it would require about \$120,000,000 to achieve this objective.

#### ***Materials, Metals, and Chemicals Control Goal***

The Task Force finds that materials, metals, and chemicals which are known or suspected to be harmful to human beings are being produced and marketed at an increasing rate. Little is known about the adverse effects of these substances with regard to allergies, chronic diseases, or long-term genetic changes.

Therefore, the Task Force recommends an effort to establish by 1970 human safety levels for synthetic materials, trace metals, and chemicals currently in use and prohibit after 1970 general use of any new synthetic material, trace metal, or chemical until approved by the Department of Health, Education, and Welfare.

It may take years unless research is specifically aimed at a given chemical compound to determine toxicity. An example of this is the story of the manufacture of radium watch dials. In this case, workers painting the dials of watches were ingesting minute quantities of radium from which many of them died prematurely years later. We believe such long term damage can and should be stopped before it occurs.

Human experience with overexposure to radioactivity unfortunately was a prerequisite to establishing safe levels for radium. Sometimes

toxicological studies with experimental animals can be used as the basis for setting safe levels for some poisons. But data obtained from animals does not always accurately predict effects in humans. Furthermore, animal studies are exceedingly difficult to relate to humans when dealing with long-term or chronic effects.

Initially, safety levels may seem to the manufacturers affected by them to be based upon grossly inadequate information, and to be much too conservative. However, prudence dictates that we must regulate the use of known dangerous items such as trace metals, as well as synthetic chemicals used individually and in complex compounds, until we are certain that they are not harmful to man under prescribed use.

Except for the makers of drugs and food additives, manufacturers presently are not obligated by law to file with any public agency full information on the composition and hazards of their products, nor to secure approval of those products or their labeling prior to distribution; consequently, such information is very difficult to obtain when needed.

Technical information is available and useful to professionals, but there is no ready reference for public use in case of an emergency. The scope of the problem is large. Some information on perhaps 35,000 (of an estimated total of 500,000 to 600,000 products) has been accumulated in files at the Food and Drug Administration.

The Task Force believes that the toxicity of all chemical compounds which may come into contact with individuals, either directly or through environmental links, should be systematically investigated, analyzed, and made available through a modern information system.

The burden of proof that materials meet safety standards should rest with the manufacturer who markets them. However, the Department must develop the in-house laboratory and administrative capability to evaluate the manufacturer's submissions expeditiously. When an

item is to be marketed for which no standard has been established, it should be withheld from the market until the Department establishes a standard.

Only in this way can the public be assured of the protection it deserves from elements in the environment which can be the source of serious public health hazards.

### **Consumer Protection Goal**

The Task Force finds that many products now available on the consumer market, including food, and household equipment and appliances, are processed or manufactured in ways that render them hazardous to human beings under normal use, and that at present there is no adequate means of protecting the consumer from such products.

Therefore, the Task Force recommends an effort which, by 1970, will initiate a comprehensive program for the identification of health and safety hazards associated with the use of appliances, clothing, food, hazardous substances, and other consumer products and for the control of such products which fail to meet consumer protection standards established by the Department.

This Goal is the logical sequence to the previous Action Goal, which recommends the certification of the physical components of the product itself. Here, we are concerned with the overall product as it is delivered to the consumer.

In 1965, a total of 711 firms suspected of producing harmful or contaminated consumer products refused to let the Food and Drug Administration conduct inspections. Some 515 refused to furnish quality or quantity formulas to the Administration; 26 denied the Administration the opportunity to observe a manufacturing procedure. And 153 refused Food and Drug Administration personnel permission to review control records. Also 111 would not permit the Food and Drug Administration to re-

view complaint files, and 216 refused permission to review shipping records.

The consumer was the victim.

Unlike most Government regulatory agencies, the Food and Drug Administration does not have subpoena authority either to summon witnesses or to require firms to divulge pertinent records. It has requested this investigative authority to allow it to do a better job of protecting the American public. To this date, the request has been denied.

In 1967, the Food and Drug Administration spent about \$4.8 million for research on nutrients, food additives, food technology research, and natural contaminants. The Food and Drug Administration plans to double this research activity in the next five years. The Public Health Service, in its parallel activities, spent about \$6 million in fiscal 1967 and plans to increase this to \$9 million annually in fiscal 1972. Both these levels are too low.

For its food inspection and control programs, the Food and Drug Administration is currently devoting \$9.6 million a year. It plans to double this by 1972. Again, the level is too low.

Responsibility for protecting the consumer from defective household equipment is in the Injury Control Program in the National Center for Urban and Industrial Health. Research has been conducted, for instance, on improving the design of lawnmowers. The Program has also promoted the use of flame resistant fabrics. In 1968, preliminary work will begin evaluating and planning studies of injuries and deaths resulting from home utilities and mechanical equipment. The present requested research budget for the total Injury Control Program for work in this field is, in 1968, \$2,053,000, and the budget for prevention and control, \$1,372,000.

With respect to foods, the Department must have considerably more authority to assure adequate protection of the public health. The Department must be able to evaluate the synergistic effect of food additives so that the consumer is protected from threats that cannot be

detected by the separate analysis of individual food additives. This means evaluating the sum total of the toxicological effects of a mixture.

Furthermore, the Department must have, as it does not now, adequate authority to inspect and evaluate the processing of foods to make certain that their safety is not impaired through the effect of a process which may or may not involve the use of additives.

It is not the intent of the Task Force that the Department undertake the evaluation of products and goods that are obviously harmless. On the other hand, the Department must be able to assure the safety of products whose safety may be incorrectly assumed because it has never been established.

The Task Force believes that present efforts at consumer protection are grossly inadequate and reflect neither the needs nor the desires of the American people. The Department of Health, Education, and Welfare, with its broad responsibilities for protection of the public health and welfare, will have to take the initiative in mounting a National program for the elimination of hazards in consumer goods, both those now marketed and those yet to be developed.

To do so will require a substantial investment of Departmental funds and resources which the Task Force finds impossible to estimate with any degree of confidence. Nevertheless, if the Department fails to accept consumer protection as one of its major environmental responsibilities, the Task Force believes that the American people will be faced with a steadily rising level of hazards associated with the use of common household goods, such as food and clothing, and appliances. The Nation cannot aspire to reasonable standards of environmental protection so long as the consumer is unable to rely on his Government to assure necessary safeguards.

#### **Radiation Control Goal**

The Task Force finds that the use of nuclear energy in this century has proceeded without

adequate knowledge of its effect on human beings, and that there are other potentially dangerous sources of radiation from which the public is not adequately shielded.

Therefore, the Task Force recommends an effort which, by 1970, through developmental research and enforcement, adequately protects workers and the public from harmful radiation levels.

X-rays were discovered in 1895, and within a year radioactivity was discovered. Very early in their research, pioneer scientists recognized the harmful effects of x-rays, radium and other radioactive species. Yet, over the years, many men and women have been martyrs to science.

There are presently 210,000 x-ray units in use in the United States in the healing arts. These constitute one of the major man-made sources of radiation for the general population. Dentists, doctors, chiropractors and technicians have been injured by excessive exposure to faulty or improperly used x-ray machines.

Even today vast numbers of dental and medical x-ray machines are far from meeting reasonable standards of safety. There is little doubt that even with widespread concern about the danger of x-rays, many Americans are over-exposed in diagnostic and therapeutic practice.

The Task Force believes that all persons using x-ray equipment should be licensed to do so, after fulfilling written examinations as to their competency. To use x-rays with optimal efficiency and, at the same time, reduce patient exposure to a minimum, it will be necessary that: (1) all equipment meets recommended standards; (2) the most advanced techniques are employed by competent operators; and (3) x-rays are used efficiently, effectively, and judiciously to promote the maximum benefit with minimum risk.

Essentially all x-ray units should meet minimal standards by 1973, provided the States accept their responsibility in this program area.

The mining of uranium ores in the United States has resulted in the exposure of many

on human behaviorally dangerous which the public

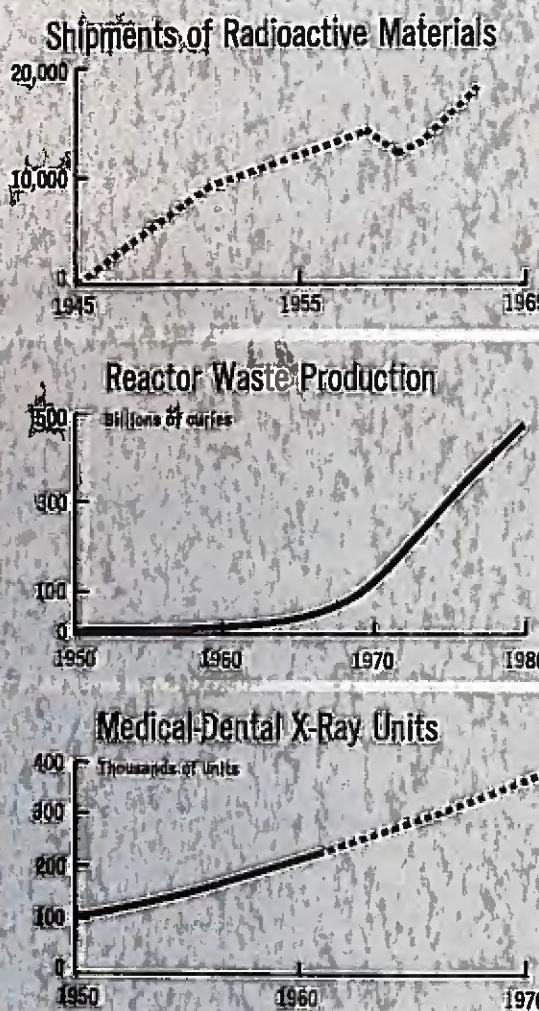
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## Radiation Hazards



thousands of men to dangerous amounts of radon gas and its daughter products. These exposures have caused an increased incidence of lung cancer in the miners. Efforts to control such exposures by State agencies and mine operators have improved conditions, but much remains to be done to insure that radiation hazards in this

segment of the nuclear energy industry are reduced to acceptable levels.

Standards for safe tolerance levels must be developed for all who are exposed to radiation-generating materials and equipment. The recent discoveries and technical advances in the area of nuclear power have opened up a newer and even broader scope of activities which could involve radiation exposure to the population.

For maximum effectiveness within the Federal Government, there must be a coordinated effort to see that research conducted in the future will give us an adequate knowledge for the establishment of human tolerance levels for radiation exposure. The Task Force believes that the Department of Health, Education, and Welfare must coordinate this effort, since overall responsibility should lie with the Department that has major concern for the health protection of all the people of this country.

The Department must continue to lead a national program to prevent undue radiation to the occupationally exposed as well as the general population, but, at the same time, must actively support technological research into the rapidly growing medical and industrial applications of both x-rays and atomic energy.

## Occupational Health and Safety Protection Goal

The Task Force finds that adequate occupational health and safety services are not sufficiently available to American workers, and that the well-being of our people and the strength of our economy would be greatly enhanced if such services were instituted in all places of employment.

Therefore, the Task Force recommends an effort to extend, by 1970, preventive services to 100% of the employed population at its work place.

Every American worker should be protected from occupationally-related environmental

health hazards which impair his mental and physical well-being and his productivity.

The occupational health program outlined here has two major concerns: occupational illnesses which are first detected and treated at the work place; and safety protection which concentrates on accident prevention on the job.

This Goal strives for the promotion of good health and well-being for all workers by the establishment of medical treatment services at the work place for larger establishments, and to make similar health services rapidly available to all workers at small work places; and further, the elimination or control to a safe limit of anything in the work environment which is deleterious to the health of workers is envisioned.

Achievement in these areas will contribute directly to the well-being of 80 million workers, reduce work absence, increase productivity, and strengthen the economy.

Industry is currently spending \$320 million a year to provide in-plant health services to some 15 million workers, according to a special Public Health Service report. These services range from excellent to poor.

The critical element that has been lacking in occupational health, the report states, is a primary focus of leadership binding together the responsibilities which have been diffused throughout the diverse groups with common obligations or interests in the field.

The national economic value of this increase in occupational health protection is indicated by the fact that a reduction of one day in the average annual sick leave taken by American workers would result in a projected addition of \$1 billion to the gross national product. The average worker now uses seven and one-half days of sick leave a year.

To achieve such a Goal requires the concerted efforts of industry, labor, and government at all levels. Responsibility for leadership can logically be assigned to the Occupational Health Program of the National Center for Urban and Industrial Health.

Because some occupational health services already exist at various levels of government, labor and industry, Federal funds needed for planning would be relatively small.

Most Federal workers, for example, already have access to some type of employee health services, so the cost of developing an organization and a program to introduce occupational health practices into existing units and to expand services to cover all 2 $\frac{1}{4}$  million workers would not be exorbitant.

In addition to costs of providing full services for Federal employees and migrant workers, other yearly Federal costs of this 100% worker coverage program would include grants to the States to develop their own programs and for contracts to carry out delegated Federal responsibilities; technical services which would provide those services which cannot be delegated; research and development of standards; measurement and surveillance of the problem; and personnel development.

An estimated total cost of about \$50 million is projected to design and promote a program which could accomplish this part of the Goal.

The annual cost of planning the proposed health services program is approximately 60 cents per worker, a modest investment in terms of health protection and one which can bring substantial economic and psychological benefits to the whole Nation.

The occupational illness and safety protection effort within the Department of Health, Education, and Welfare is presently centered in a \$3.5 million a year program within the National Center for Urban and Industrial Health. The program is implemented through research, training and technical assistance functions with additional grant activities by the Center.

A sizable backlog of requested services from all levels of State and local health agencies, as well as industry and labor, exists which cannot be fulfilled due to the current lack of resources.

### **Governmental Compliance Goal**

The Task Force finds that many Federal, State, and local agencies are carrying out programs which affect the quality of the environment in a manner of concern to the Department of Health, Education, and Welfare.

Therefore, the Task Force recommends an effort which, by 1969, through effective relations with local, State, and Federal Governments, will ensure that criteria and standards for physical and mental health, for housing, urban development, and transportation will be available and used by the Federal agencies administering these programs.

If the environmental health standards in the Goal cited above are quantitatively established, then various Federal, State, local and other groups and individuals will need to cooperate to attain them.

A central focus is required.

A broad, effective intergovernmental program, as outlined in the Goal above, is essential to effectively apply environmental standards to our urban housing, development and transportation program. Until there is such a program, cities will continue to grow in the disorganized, uncoordinated style that allows a freeway engineer to take the shortest and most direct route and destroy a neighborhood in the process.

The causes of crime, delinquency, physical and mental illnesses, and social discord which tend to increase in cities are in part rooted in social disruption.

Dr. Leonard Duhl, a psychiatrist in the Office of the Secretary of Housing and Urban Development argues that, if we are to create a better environment, we need a better combination of urban housing, schools, and parks. We need a better combination of administrative expertise. We must begin writing combined, or multi-performance, construction specifications, so that work can be done better at lower costs. Dr. Duhl contends it is cheaper and more efficient to consider the sociological and psychological factors

of environment before new, lost-cost housing is designed than after it is constructed. If these factors are neglected, he says, it is likely the new housing project will find itself seriously lacking.

Once the concept of bridging territories of administrative authority is understood, controlled, and employed, then an environment-wide approach will more easily arrive at socially desirable goals.

Two Departmental offices exist today with broad responsibilities for seeing that knowledge gained about the effects of environmental hazards on physical and mental health is considered by all government agencies planning and implementing projects in housing, urban development, and transportation. But these offices have less than one dozen professionals working in two tiny organizational entities: the Environmental Health Planning Section of the Center for Urban and Industrial Health, and the new Center for Community Planning being created at the Assistant Secretary level.

The first is a small Washington-based group consisting of a director, a sociologist, a city planner, a training officer, an engineer, and an architect. They have pioneered in helping a few of the Nation's communities organize to improve the healthfulness of their environments.

Through its training programs during the last seven years, this group has been serving as a catalyst to community action. Even though this one group can hold but a limited number of training conferences in one year, and its annual budget has just recently reached \$100,000, it has been able to reach 60 of the some 20,000 communities in the United States.

Last year, this Planning Section began a program of holding similar conferences for individual States on the governor's level. Two States were helped. At this rate it will take 25 years to assist all the States.

The second organization, the Center for Community Planning, exists largely on paper. It was created in response to the Department of Housing and Urban Development's request for a

group in the Department of Health, Education, and Welfare to review grant proposals for its Model Cities Program. The Center has a projected professional staff of eighteen in Washington. It will work also with Health, Education, and Welfare staffs in Departmental Regional Offices. The objective is to encourage State and local agencies to incorporate health planning into the Model Cities Program. Because the regional staffs have other responsibilities and must cover large geographical areas,

the amount of help they can offer communities on health questions of this nature is necessarily limited.

The Task Force believes that the Department of Health, Education, and Welfare should be given the responsibility for controlling the health standards for a number of environmentally related programs—as in housing, urban development, and transportation—and that the Center for Community Planning should be expanded to do the job.

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## Chapter III

# STRATEGY

**T**RADITIONALLY, our means of dealing with environmental hazards to man's health and welfare has been one of reaction to crisis. When an environmental hazard became apparent, elements of our society reacted to eliminate or control such a hazard, or merely to live with it. This pattern of environmental protection has fallen short of its purpose. By neglecting action until disease and death leave no acceptable alternative, it has applied an unrealistic and inhuman standard to the need for action to protect the environment and the health and well-being of people.

This method of dealing with problems of the environment is unacceptable today. The time has arrived when we must stop allowing human beings to serve involuntarily as guinea pigs in our experiments with environmental change.

A fundamentally new approach is needed, one based on the idea that impairment of man's health and welfare ought to be regarded as Nature's last distress signal of an environmental hazard, not the first.

This approach to environmental protection must be based on a new view of the relationship of man, health, and the environment—namely, that human illness can be a symptom of environmental disease, and that environmental health efforts must treat or prevent the disease itself, not the symptom.

Many signs can be found of the need for a new approach to environmental protection. The problem of chronic respiratory illness, for example, which is increasing at an alarming rate, must be recognized as a symptom of a diseased environment. Bronchitis, emphysema, and lung cancer are associated with both community air pollution and cigarette smoking, as well as with occupational hazards. Modest efforts are being made to bring these environmental causes of respiratory disease under control, or, in the case of cigarette smoking, at least to inform people of a personal environmental hazard which they inflict on themselves. Yet if medical cures were developed for emphysema, bronchitis, and lung cancer, it seems likely that much concern about polluted air would be dissipated simply because one group of symptoms of the disease of air pollution had been alleviated before another took its place. To put it another way, a stunning, though limited, victory in the field of personal health might signal a defeat in the effort to treat and cure environmental disease.

Mental health problems provide a concrete illustration of the hypothetical example presented above. Great strides in drug therapy have made it possible to return to the community environment a rising percentage of persons institutionalized because of mental illness. Yet

these discharged patients return to surroundings and conditions which probably contributed to their illness. Thus again, the symptom is under control while the environmental disease goes largely untreated.

Certainly no effort should be spared to end the ravages of physical and mental illness. But efforts to control environmental disease must not be relegated to a position of lesser importance. They are in that position today. The Task Force believes that the Department of Health, Education, and Welfare will need to reorient its activities if the Nation is to mount an attack on environmental disease that goes beyond an unacceptable symptomatic approach.

### **A Functional Approach to Environmental Protection**

To meet the Department's responsibilities in the environmental health field, its activities will have to be reoriented to ensure maximum efficiency in pursuit of optimum health through control of environmental disease.

Organization by categories is a hit-or-miss method of meeting problems of environmental health and disease. These operational categories—occupational health, sanitary engineering, solid waste disposal, air pollution—represent the Department's response to the challenge to cope with what have been perceived as the evolving hazards of the environment. But the existence of these separate, independent-thinking, categorical organizations invites an insidious specialization which finds agency personnel involved in disparate programs, often with conflicting goals.

Common concern for overall environmental health objectives too often is crowded out.

The present organization, by categories, denies the Secretary the tools and the information he needs to promote common objectives which transcend categorical goals and programs.

The Task Force believes that the manifold problems of environmental health can best be met by restyling the Department's environ-

mental health operations around the concept of functions. Such an approach calls for integrating common functions now conducted separately in the categorical operating units of the Department.

Six common functions have been identified by the Task Force:

- Research and Development
- Determination of Criteria and Standards
- Enforcement
- Manpower Development
- Public Awareness
- Intergovernmental Relations

A functional approach based on a comprehensive view of environmental health problems and needs, we believe, represents the Department's best opportunity to integrate and coordinate its environmental health activities.

New structures will be needed at the highest echelons of the Department, because a functional approach demands coordination from the top. Assistant Secretaries charged with responsibility for coordinating functions would appear to be needed.

A functional approach need not be described here at length. It involves simply shifting the thrust of the Department's environmental protection activities from their present narrow concern with specific features of the environment, for example the air, to segments of the total mission of environmental protection, such as research and development, promulgation of and compliance with standards, and surveillance.

As a part of this functional approach, the Department can evolve rapidly a system for continuing protection of the environment, a means for going beyond the immediate Goals outlined earlier in this Report so that tomorrow's envi-

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ronmental protection activities will prevent,  
rather than attempt to correct, mistakes.

A key function in efforts aimed at overcom-  
ing environmental health problems is research  
and development, for which the Department is  
spending millions of dollars each year in its  
many categorical program areas.

Research and development is probably the  
best coordinated of the six functions carried  
out by the operating units of the Depart-  
ment dealing with environmental health. For  
example, in the Bureau of Disease Prevention  
and Environmental Control of the Public  
Health Service, research and development is  
coordinated at the Bureau level. Theoretically,  
at least, research conducted and supported by  
the Bureau through its National Centers for  
Communicable Disease, Chronic Disease, Air  
Pollution, Radiological Health, and Urban and  
Industrial Health is part of one overall, coordi-  
nated and integrated effort. This kind of orga-  
nization of the research and development func-  
tion should be extended upward into the Office  
of the Secretary.

Several critical factors having to do with  
the organization and structure of the Depart-  
ment make it highly important that the Office  
of the Secretary assume responsibility for co-  
ordination of research and development in en-  
vironmental protection. First, these activities  
are by no means confined to the Public Health  
Service, but are spread across many constituent  
agencies of the Department, including Office of  
Education, Welfare Administration, Food and  
Drug Administration, and others. Coordination,  
planning, and programming of research, there-  
fore, can only be accomplished through and by  
the Office of the Secretary.

The Task Force rejects as unwise and cum-  
bersome the suggestion that all Departmental  
research and development pertaining to en-  
vironmental health should be lodged in the  
Public Health Service or carried out under its  
direction. The view of environmental protection  
which the Task Force urges the Department to

adopt implies that strictly health-related re-  
search and development, such as that for which  
the Public Health Service is responsible, does  
not represent the totality of the research and  
development needed to combat and correct the  
sickness of man's environment. For example,  
much that is wrong with the environment comes  
about through lack of attention in our educa-  
tional process to the subject of man's responsi-  
bility as custodian of the world about him. The  
Task Force does not suggest, however, that re-  
search and practical effort to correct this fail-  
ing should be carried out by the Public Health  
Service, since it is obviously an important task  
for the Office of Education and the Nation's  
educational system.

Research on environmental protection should  
continue to proceed on two major levels, but  
the degree of emphasis given these levels needs  
to be shifted. There is, and will continue to be,  
a need for essentially undirected research—ex-  
ploration—to increase understanding of man  
and the world he inhabits. The Department  
should continue to support basic research at  
academic institutions by qualified investigators  
who are largely detached from the day-to-day  
need to achieve goals.

The Task Force believes that an effective  
harmony can be achieved between directed and  
non-directed research efforts if the Department  
supports the creation of environmental health  
research centers which recognize as their mis-  
sion the development of basic and applied sci-  
entific information that will serve to meet en-  
vironmental protection goals and objectives  
formulated by the Department. The Task  
Force recommends that the Department con-  
tract with appropriate universities and/or  
research institutions for the establishment  
and operation of a facility for large-scale,  
long-term, health-related studies in human  
ecology, and further recommends that the  
Department undertake a grants program for  
the establishment and support of university-

**based centers for ecologically oriented environmental health studies.**

The Task Force has become acutely aware of the lack of outside expertise that the Department can call on to help plan needed programs to meet environmental health challenges and to conduct research aimed at developing appropriate solutions. The Task Force is aware of the Department's extensive use of consultants and advisory groups, but it feels that this technique does not suffice to meet the need for creative thinking and productive research. The formal research grant mechanism is often too cumbersome and problematical to be relied on for the kind of problem-oriented research that will be needed to deal with complex environmental problems.

The Task Force believes that the Department should move rapidly to establish a non-government environmental research organization which would work closely with Department personnel in planning and carrying out a research program responsive to the Department's needs for scientific knowledge to meet environmental protection goals. It therefore recommends that the Department create through contracts a nonprofit research organization using experts in a wide variety of fields to respond exclusively to the Department's need for problem solving in the health and environmental health areas.

At the same time, the Department should continue to support research and development efforts that are highly directed as to purpose, directed toward solving environmental health problems and achieving Departmental goals that have been arrived at on the basis of scientific, social, political, economic, and other factors that must be weighed in our overall planning for protection of the environment. The Task Force recommends that an Office of Assistant Secretary for Research and Development be established so that activities within, or supported by, the Department are integrated

into a total systems approach with overview, direction, and control.

The Task Force has reached the conclusion that lack of extensive criteria and standards for environmental protection is a major impediment to progress in environmental health. We recognize that various segments of the Department, including the Secretary, promulgate criteria and standards for environmental health protection. However, the range of authority for standard-setting which the Department has in the area of environmental protection is severely limited and fractionated. For example, the Department is authorized to set standards for pollutants discharged from motor vehicles, but not from other sources of atmospheric pollution. It has the authority to set standards for the water served to people on interstate airplanes, trains, and buses, but not for the water they drink in their homes, offices, schools, playgrounds, and hospitals.

The pressing need for vigorous development of environmental protection standards is two-fold at least: First, the development of standards in itself represents a statement of national goals for environmental quality; second, once goals are set, the vast but largely untapped research and development potential of American industry can be effectively applied toward achieving satisfactory environmental quality protection.

Standards development must be carried out functionally by the Department, rather than categorically by various sub-units involved in environmental health programs. To a degree, the Bureau of Disease Prevention and Environmental Control of the Public Health Service is structured to take a functional approach to standards development, but this Bureau alone is in no position to discharge the Department's broad responsibility for development of environmental protection standards envisioned by the Task Force. Other segments of the Public Health Service and of the Department will have

to play major roles in the preparation and review of environmental standards.

The setting of standards implies, of course, that such standards are to be met. In our society, compliance through enlightened voluntary action is to be preferred, but voluntary action has achieved a very poor record insofar as environmental health protection is concerned. More effective means should be sought to encourage action on the part of those responsible for polluting the air, for example. But the Task Force is not disposed to believe that prompt and effective control of environmental hazards will be achieved through voluntary compliance unless the call for compliance is backed by a careful and swift mechanism of enforcement based on the exercise of local, State, and Federal powers.

The Department's function in the realm of enforced environmental control measures is, at present, limited legislatively to a categorical approach. Although enforcement powers are vested appropriately in the Secretary, his actions are categorical in nature. That is to say, the Secretary can order the control of air pollution under authority granted him by the Clean Air Act of 1963 when he has reason to believe that the public health or welfare is endangered. But he is powerless to act to eliminate a similar hazard that may exist in the working environment of thousands of employed persons whose occupation may subject them to a more acute exposure of the same pollutant found in the ambient air. The Secretary can halt interstate sales of an entire crop if he finds that it contains too much pesticide residue, but he can do nothing to protect the people from a supply of drinking water no matter how much of this or any other hazardous substance it may contain.

Enforcement then, like the other major elements of environmental health protection, must be mingled on a functional, rather than a categorical, basis. The Department must reorient its efforts and seek additional legislative authority so as to be able to address itself broadly to

the problem of enforced control of environmental hazards in whatever way that they endanger health or welfare.

It has been said often that environmental health protection efforts are severely hampered by a shortage of skilled manpower. The statement bears repeating here. The Task Force, like many other groups that have studied environmental health programs and problems, rediscovered the fact that efforts by the Department and other Federal agencies, by agencies of State and local governments, by universities and research organizations, and by industry to secure the kind and number of personnel they need to develop and carry forward environmental health programs meet with near failure. As a result, the environmental health field too often finds itself with the poorly trained practitioner, the part-time worker, the non-motivated and uninspired administrator who views his work in environmental health as an unpleasant chore, rather than a rewarding career. There would appear also to be an overemphasis on the employment of engineers to deal with environmental health problems whose solutions require far more than engineering skills alone.

The Task Force has formed the impression that capable workers in the field of environmental health protection are so concentrated in the Federal government that only a small number of cities and States and a correspondingly limited segment of industry are staffed by adequately trained, creative environmental health personnel.

So long as this situation continues, there can be little hope for significant progress toward the achievement of improved environmental quality and health protection.

The Public Health Service conducts and supports training activities in the various categorical approaches to environmental health protection for which it is responsible—air pollution, solid wastes, occupational health, milk and food protection, and others. This must continue on an expanding basis, for although we are not

aware of any authoritative estimate of the unmet need for environmental health personnel, the Task Force is convinced that the present number is in the thousands and that future manpower needs will dwarf those of today.

The development of manpower must be recognized by the Department as a part of the functional approach to environmental health protection. It cannot be solely the responsibility of the National Center for Air Pollution Control to help develop the personnel who will be needed to win the battle for clean air. It cannot be solely the function of the National Center for Urban and Industrial Health to help produce the urban health planners needed by every State and most urban areas in the country. These Centers have a vast array of program responsibilities which prevent them from giving to the manpower shortage the attention it requires.

Equally essential for needed progress toward protection of environmental health is effective and constructive public awareness, both of environmental hazards and what can and must be done to control them. The Task Force has found an uneven performance by environmental health programs within the Department in the task of gaining public support through informed understanding. There is clearly a need for the Department to undertake a greatly expanded public awareness program as a functional, rather than a categorical, effort.

Under the prevailing categorical approach, the public's attention is being competed for by information programs relating specifically to single environmental health problems—air pollution, solid waste management, injury control, and others. To a marked degree, the Task Force believes, this tends to overwhelm the receiving public with an array of problem-related information at the expense of a more constructive awareness of the interrelationship of environmental protection problems and goals.

Moreover, the Task Force senses that public awareness efforts have tended to overemphasize the use of communications media at the expense

of more long-term attempts to change public attitudes through the educational process. We are not advocating that the Department diminish its programs to disseminate information through the news media. Problems of environmental health are, and will continue to be, highly newsworthy, and the Department, as the principal Federal authority in this area, is responsible for providing timely, authoritative information to the public. However, at least equal emphasis needs to be placed on public awareness efforts which can be expected to produce beneficial changes in the national consciousness about environmental protection problems and objectives. This is fundamentally an educational process, and the Department should give serious attention to developing and promoting programs for elementary and secondary schools which will make the children of today better able to comprehend the significance and ramifications of environmental protection so that as decision-making adults they will function from a position of knowledge in determining how society will respond to future environmental problems.

As yet, the Department has not made an effort to determine what social factors and pressures most forcefully influence public attitudes (including indifference) toward environmental problems. The lack of such information compels the Department's public awareness efforts to operate somewhat in the dark. To strengthen the Department's ability to increase public awareness, we recommend that the Department provide grant-in-aid or contract support for the establishment and operation of urban sociological health research centers in major metropolitan areas.

Such centers would perform the function of developing basic information on the effect of environmental influences on man's social well-being. Through this approach, the function of public awareness could serve the Department's environmental protection effort by gaining public understanding by acquiring much-needed

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Finally, in the list of environmental protec-  
tion functions now carried out by programs  
within the Department, the Task Force has  
noted that what may be termed intergovern-  
mental relations apparently suffers from the  
deviative effect of a categorical, rather than a  
functional, approach. The extent to which the  
Department will be able to meet its responsi-  
bility for environmental protection will be de-  
termined largely by its ability to support the  
efforts of other agencies of government—Fed-  
eral, State and local—on which will fall much  
of the burden to deliver environmental protec-  
tion services to the people of the United States.  
Increasingly, agencies of government will look  
to the Department for both guidance and sup-  
port, and the Department should be in a position  
to provide them in a manner which promotes a  
comprehensive, rather than a fractionated, at-  
tack on environmental problems. Grants-in-aid,  
technical assistance teams, criteria and stand-  
ards, technical and public information and edu-  
cation, manpower, and direct measures to  
achieve compliance are the chief forms of sup-  
port which the Department will have to provide  
to other agencies of government at all levels. At  
present, these kinds of aid are being furnished  
with widely varying degrees of effectiveness.  
But, until this function of intergovernmental  
relations is recognized and administered as part  
of a comprehensive system designed to integrate  
environmental activities, the Department will  
fail to provide the balanced, responsive support  
on which progress toward improved environ-  
mental quality depends.

### **An Environmental Protection System**

Reorientation of the Department's environ-  
mental protection activities by function, rather  
than by category, is not an end in itself. It is  
instead the means toward development of a sys-  
tem that will assure increasingly effective con-

trol of environmental hazards and improvement  
of the national health and welfare.

The purpose of the Environmental Protection  
System described on the following pages is to  
provide the means of continuously identifying,  
analyzing, and controlling environmental haz-  
ards to the public health and welfare. It should  
be emphasized that this System, unlike the  
Action Goals elaborated in Chapter II, is not  
designed to reach a target by a specified date  
(although there are important elements of the  
Protection System that will have to be planned  
and implemented according to a carefully  
worked out time schedule). The purpose of the  
Protection System is to provide a permanent  
means of meeting ever-changing environmental  
hazards, both old and new, and of making cer-  
tain that environmental protection efforts are  
comprehensively integrated into a total systems  
approach.

The Task Force urges that the Department  
take steps leading to the development and im-  
plementation of an Environmental Protection  
System, functionally oriented, and consisting of  
the following principal elements:

1. Environmental Surveillance and Associated Basic Research
2. Establishment of Criteria and Promulgation of Standards
3. Developmental Research
4. Compliance

Such a System combines, on a functional basis,  
the detection and identification of environmen-  
tal hazards, including research on their sources,  
extent, and effects; the adoption and promulga-  
tion of criteria and standards based upon risk-  
benefit analyses; the conduct of an aggressive  
program of developmental research in conjunc-  
tion with industry to produce hardware and  
technology for control of environmental haz-  
ards; and a compliance program involving, but  
not limited to, support of State and local gov-

ernments in their efforts to plan, organize, and administer environmental protection programs on an appropriate geographic basis.

### **Surveillance and Basic Research**

An important, primary step in this systems approach is that of continuous surveillance of the environment for any element that does or may adversely affect man's health and welfare. Called by some an early warning system, it should identify hazards before man falls victim to their effects. Assessment of physical, social, psychological, and economic effects and their significance in increasing human susceptibility to physical, chemical, and biological agents is needed.

Therefore, the Task Force recommends establishment of a surveillance and warning program which will, through basic research, identify current and potential problems, and the extent of the effect of these problems on man, thus giving the Department the continuing supply of scientific knowledge necessary to protect man from environmental injury and aesthetic insult.

It is important that the Department begin immediately to establish and maintain a comprehensive surveillance and monitoring system for the principal components of man's environment. The beginnings of such a system already exist for air and water pollutants, pesticide chemicals, radioactivity, and food contaminants.

Such a system needs to be expanded geographically, and it needs to provide more sensitive detection and rapid and accurate identification of potential environmental hazards. More importantly, the system needs to be integrated to provide a comprehensive assessment of the stresses in the physical environment impinging on man. The system requires an environmental surveillance staff which identifies and indexes stressing agents; develops methods for monitoring; oversees programs of environmental monitoring carried on by State and local agencies;

and provides for timely transmission of data to a national center. The system should avail itself of the resources and facilities of the Nation's universities and research laboratories, as well as other environment-concerned agencies such as the Departments of Defense and the Interior, Environmental Science Services Administration, National Aeronautics and Space Administration, Department of Agriculture, Atomic Energy Commission, National Science Foundation and National Academy of Science-National Research Council.

Paralleling this effort in the physical environment must be research into the psycho-social environment. This effort will differ from that for the physical environment in the kind of instrumentation used, sensitivity and preciseness of measurement, quantitation of data and description of the stressor. It will rely heavily on sociological and psychological methodology combined with an epidemiological approach to the measure of disorder. It should avail itself of the expertise, resources, and facilities of the many university departments, institutes, and private organizations engaged in research and study, particularly of the urban environment.

Undoubtedly, a surveillance system as comprehensive as this will require the use of advanced technology for electronic data collection, storage, retrieval, and analysis.

The comprehensive surveillance and monitoring system needs to be specific and sensitive in measurement, accurate in sampling, comprehensive in coverage of populations and geographical settings, sophisticated in detail, and continuous in time.

The requirement for this system is urgent; therefore, the Task Force recommends that the Department develop by 1970 a nationwide surveillance system necessary for identifying levels of pollutants and components of pollutants in air, water, and soil.

Such a system can be created by using the resources and skills of private industry. It needs to be imaginative and may even be aided by

ission of data to could avail itself of the Nation's tories, as well as agencies such as the Interior, the Administra- Space Admin- culture, Atomic Science Founda- Science-National

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using satellites now in existence or yet to be developed.

A specific area of concern which the Task Force feels this program must direct itself toward is the relationship between man and his environment and disease.

The Task Force found that research on the role of the environment as a direct or contributory cause of specific diseases is seriously inadequate.

Air pollution contributes to various upper respiratory ailments. Some studies have shown that environmental conditions can cause mental retardation. But there is insufficient systematic work underway to determine comprehensively the complex role of environmental insults in human disease.

As a result, it is virtually impossible for the Department to establish goals for disease reduction and thus to determine how best to apply its resources.

The environmental hazards surveillance system can be expected to provide the major inputs to a needed basic research effort whose principal focus should be an exhaustive documentation of the physical and psychosocial effects on man actually or potentially produced by environmental contaminants.

Environmental surveillance and research must be planned and conducted so that each function can respond rapidly to developments in the other. The Task Force could not find any significant attempt by the Department to achieve this level of coordination between environmental surveillance and basic environmental health research. The System should also be structured so that any significant knowledge gained from either surveillance or research can quickly be integrated into the other programs in the System. Otherwise, research becomes overly academic and isolated and surveillance becomes a process of gathering data whose potential scientific value is largely untapped. This data should automatically travel to those responsible

for criteria and standards under the designed program.

The Task Force believes that the Department must move rapidly to establish throughout the Nation centers of ecological research whose programs will permit the interaction between surveillance and research that is clearly to be desired. Although these centers should enjoy the advantages that freedom of scientific inquiry affords, they should at all times be prepared to explore and exploit opportunities for increased knowledge uncovered through environmental surveillance. Similarly, they should be in a position to influence changes in the surveillance system so that it avoids stagnation and useless rigidity. Research should be able to indicate when monitoring of a specific environmental factor should stop, as well as when it should start.

### **Development of Criteria and Promulgation of Standards**

The development of criteria for environmental quality should reflect and set forth the best available knowledge of the effects of environmental contaminants, singly and in combination, on man's health and welfare. Such criteria would best be expressed in terms of range of effect, beginning at a level of exposure at which no effect can be detected, and extending from that point upward along a spectrum of observable effects.

Standards to be promulgated by the Department or other Federal and non-Federal agencies could then be based on established criteria and expressed in terms of two levels, an acceptable level of exposure and an optimum level. The acceptable level standard must be promulgated in recognition both of the need for health and welfare protection and of the availability of technical resources for meeting the standard. The optimum level standard should be predicated entirely on the need to achieve better environmental quality without regard to existing, temporary technological barriers.

The Task Force feels that establishment of dual-level standards should carry with it as a matter of policy a mandate for the Department to work for the rapid movement of environmental protection efforts from the acceptable to the optimum level.

It is also important that the Department maintain the freedom to revise both criteria and standards in line with changing scientific knowledge, technology, and social values.

The Task Force recognizes that the establishment of standards will be an exceedingly difficult task.

To obtain this objective, the Task Force recommends establishment of an environmental design program which will establish criteria and dual level standards for individual hazards and combinations of hazards under varying conditions of geography, population, industrialization, economics, and technology, with one level being the minimum health level acceptable and the other being the desirable level which can be achieved in a specific number of years.

The setting of criteria and promulgation of standards for any environmental contaminant is to some extent an arbitrary action, a value judgment which in many cases must be made on the basis of insufficient evidence. It is a weighing of risks versus rewards, of costs versus benefits to society. We could, for example, forbid the use of insecticides because of contamination of food stuffs, but only at the cost of a radical change in agricultural production.

Dr. James Goddard, Commissioner of the Food and Drug Administration, told the Task Force that we annually apply 600 million pounds of pesticide chemicals and other organic agricultural chemicals, fungicides and herbicides to the ground and crops. Pointing to a level of 0.005 parts per million, which industry believes is a safe residue of aldrin and dieldrin in milk, Dr. Goddard stated: "No one knows what the chronic ingestion of three parts per billion of pesticides in milk would do over a

long period." The major problem here is that there is a lack of scientific data to support a specific standard.

Furthermore, even though toxicological research is vastly accelerated, it may take years to acquire and evaluate the data.

Obviously, standards have to be set now in the absence of complete data, because the consumer must be protected. The level of pesticide residue permitted in milk should represent the best judgment that experts can now make concerning the potential hazard, bearing in mind the benefit to be derived from the judicious use of pesticides and other chemicals in food production.

Another aspect of the problem of standards involves protection of the health and safety of workers. In the case of occupational hazards we are dealing with a well defined, special population group, adults exposed to environmental hazards in their place of work. Medical examination insures that they are healthy. They can be educated in proper procedures for dealing with hazards. They are exposed to occupational hazards for about 40 hours per week, or less than one-fourth of the time. They can be monitored for evidence of excessive exposure and promptly removed from additional risk. They may be given periodic medical examinations to detect evidence of untoward effects. In a word: the occupational hazard can be put under surveillance and control.

However, when the total population is exposed to risk, the difference between an occupational standard and a general population standard severely taxes judgment.

How does one arrive at a fair or safe standard? Clearly, in most cases, it is not possible to have a no-risk standard. For example, if a general population standard for exposure were one-tenth the industrial standard, this might still be a substantial risk.

Where does safety find a proper level? At 1, 10 or 100 cases of ill effects? For the one who is injured, the risk is always too high, especially

here is that if the effect is death. Judgment means balancing risks versus rewards.

The United States has allowed a million traffic deaths since the end of World War II—not to mention a much higher number of non-fatal casualties on the highway. The current rate of 50,000 traffic deaths per year equals one fatality per 4,000 people per year. In other words, each American family (4 people) has one chance in 1,000 of suffering a fatal automobile accident in a single year. It is part of the price we pay for mobility. Is it a tolerable hazard?

At the height of the polio epidemics 33,300 died in a single year. But the public was frightened, and its sense of decency and humanity was outraged. Last year, as a result of applied knowledge gained through research, poliomyelitis claimed fewer than 200 lives. This illustrates that the public concept of a standard—the contrast between killing or maiming by motor car, and crippling by a preventable disease—can be markedly varied.

The mechanism for setting and modifying standards and criteria must be functional, not categorical. Although this point has been emphasized earlier, it should again be pointed out here that criteria and standards for air pollutants, for example, must relate to and reflect the effect of other environmental factors which influence the response of the population to a given air contaminant. We must, in other words, break away from the pattern of developing criteria and setting standards in a vacuum, as it were, without regard for other environmental insults which may increase or decrease the gross adverse effect of a specific pollutant or class of pollutants.

Criteria developed by the Department would become the basic data used by other agencies and governmental jurisdictions for the setting of standards where such authority exists. It would also be used by those responsible for developmental research to plan programs for improving the ability to meet higher and higher standards.

While all this takes time, the Task Force be-

lieves an immediate start is necessary on the basis of knowledge in hand.

Therefore, the Task Force recommends that there be established by 1970 criteria for individual and combinations of chemicals discharged into the air, water, or soil.

### Developmental Research

The Task Force recommends establishment of a technological development program using contracts with industry in conjunction with Departmental activities and grants to institutions so as to bring about the technological improvement necessary to reach the desirable environmental quality levels.

The Environmental Protection System which the Task Force envisions would be dependent on a marked increase in and reorientation of the Department's efforts to support and promote developmental research for environmental control. The Task Force defines developmental research as the effort to produce the instruments, equipment, machines, and other hardware, and the applied technology required to close the gap between presently achievable and optimum standards for environmental protection.

The Department will be obliged to take a principal guiding role in setting targets for developmental research and in seeing that such research is carried out. It is for this reason we recommend that the post of Assistant Secretary for Research and Development be created within the Department. This Office should be given the responsibility and means to implement a massive effort toward the delivery of the hardware and technology that will be required as an integral part of the proposed environmental protection system.

The Task Force has reached the conclusion that the Department of Health, Education, and Welfare will have to accept major responsibility for stimulating and supporting developmental research in the field of environmental protec-

tion. Although ideally the patterns of supply and demand, the opening of new market possibilities, and the profit motive should lead industry into the field of environmental research and development, past experience gives the Task Force no reason to suspect that this ideal situation will come to pass. The automobile industry did not produce the technology and hardware for control of exhaust emissions until compelled to do so by governmental action; the chemical industry did not produce degradable detergents until it was clearly facing Governmental action; container manufacturers and users have not moved to produce waste-reducing packaging materials because they do not yet anticipate the eventual need for control of this source of environmental contamination.

It will be necessary, therefore, for the Department to support developmental research in much the same way that the Department of Defense and the Space Administration do, through an extensive industrial research contract program.

A logical first step in this direction would be the creation of a non-governmental corporation which, under contract to the Department, could begin almost immediately to evolve a systems approach to meeting developmental research needs. Such an environmental Rand Corporation does not exist; academic institutions do not lend themselves well to this type of endeavor.

There should be created within the Department a counterpart organization or staff under the direction of the Assistant Secretary for Research and Development which could balance and complement the effort produced by extra-Departmental organization. Their approaches to problem solving would differ, but they would differ constructively.

How can the Department obtain the needed level of industrial cooperation? The Task Force has suggested that the Department must support developmental research if it wants the work done. But, is industry willing to contract for its research and development capabilities and products to the Department of Health, Education,

and Welfare? There is no certain answer, because the Department has not yet tried to bargain for industrial research and development services. The Task Force's judgment is that the Department would not under present circumstances find industry very willing to become involved with the Department in this effort.

There are several reasons for this, two of which are critically important, and correctable. First, by failing to make clear its intent to mount a national effort toward prevention and control of environmental hazards, the Department has given industry no clear reason to believe that it has an interest in environmental protection research and development. The Department has not attempted to develop criteria and establish standards beyond those it is required to set. Therefore, industry can find no goal, no end point toward which its research and development efforts might be directed. Contrast this with the stated intent of the Department of Transportation to develop a supersonic commercial aircraft or high-speed rail systems, and it can clearly be seen why there is keen industrial competition in those two fields and virtually none in the field of environmental protection.

Second, by maintaining policies which effectively deny industry a reasonable profit from work carried out under contract, the Department offers no incentive that has any practical appeal to industrial management; that is, it offers limited opportunity to make a profit.

One of the major issues involved here is the Department's patent policy. The Task Force is not advocating a change in policy that would result in Federal funds being used to create monopoly situations, but it feels that the Secretary should look closely at the present patent policy to determine how it could be used to encourage increased industrial involvement in the national environmental protection effort.

The Department should be prepared to expand, literally by a hundred times, its expenditures for industrial development research. The

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Task Force sees no alternative to this course of action if developmental research is to take its place in an effective system for environmental protection.

But to do this job, the Department must be better equipped to deal with industry. At present it lacks the personnel or the orientation to make the best use of industrial capabilities.

The proper use of a systems approach to research must be developed. Personnel experienced in developing concepts and program definitions must be obtained.

While millions are expended with institutions and individuals for grant support of research, the Task Force feels that the results too often fail to meet the Department's needs.

While the Task Force does not suggest that they be discontinued, it does believe that they must be integrated into meaningful developmental research.

Another aspect of the Departmental attitude that needs change is the approach that the most advanced and perfect solution be found before any implementation is begun. Developmental research must be created on the basis of successive generations of improvement. The Defense Department does not wait until it has the most advanced airplane. It uses what meets the National defense needs now, while continuing research for improvement.

Yet the task is not just improving the state of the art. It also requires conducting and supporting advanced basic research. This is needed principally so that those responsible for criteria and standards will have some basis for knowing what levels of environmental health protection can be achieved through technological development.

### Compliance

To be successful, the Environmental Protection System will require a climate that encourages and supports compliance with criteria and standards.

In order for the Department to create such a climate, the Task Force urges adoption of the following basic recommendation:

Establishment of an intergovernmental compliance program using Federal functionally oriented grants-in-aid free of formula and allocation restrictions in conjunction with Federal technical assistance teams to obtain comprehensive plans and action from State and local governments consistent with national goals and objectives.

The Task Force offers two additional recommendations setting objectives for accomplishing the basic recommendation:

First, the Task Force recommends requiring, by 1969, the filing of five-year comprehensive environmental health plans from State and local governments receiving funds from the Department;

Second, the Task Force recommends creation, by 1968, of a permanent technical assistance unit within the Department which can provide multidisciplined teams of specialists to be available to State and local governments at their request to aid in planning and implementing environmental health programs.

Intergovernmental relations are central to the launching of a constructive, forward-looking program of compliance. At the Federal level, the Department of Health, Education, and Welfare must occupy a position of leadership to insure that the Federal government itself sets the best possible example to the Nation with respect to the control and prevention of environmental hazards.

Because of its sheer size and scope, the Federal Government is involved in an infinite range of activities that either actually or potentially endanger human health and welfare through adverse effects on the environment. Agencies of the Federal Government, like governmental agencies at other levels, industry, and the public, require authoritative guidance and usable

information in order to plan and carry out programs for environmental protection.

The Task Force recommends, therefore, that there be established in other Federal agencies units of the Department of Health, Education, and Welfare to provide liaison to those agencies and an assessment of the effects of their programs on man's environmental health and welfare.

The Department must also seek to strengthen its ability to assist States and communities in joining in a national effort to protect the environment. We believe that our recommendations, if acted upon, would provide the basis for productive collaboration between Federal, State, and local governments.

It is apparent that funding is and will continue to be a major obstacle. But simply to direct more money into present categorical programs will not, in the opinion of the Task Force, provide a satisfactory solution to the financial problems of State and local agencies.

The Task Force believes that the funding mechanisms for environmental protection must afford a high degree of flexibility on the part of the agency receiving funds. At the same time, however, we feel that these agencies must be required to submit to the Department a comprehensive plan for environmental protection programs covering not less than a five-year projection and embracing a geographic area large enough to assure effective action.

Such a plan must not be considered as all inclusive or totally binding, however, for this would defeat the objective of flexibility. An agency receiving grant funds for environmental program support should be free, within discretionary limits, to shift its emphasis, re-allocate its funds, or embark on a new project.

Coupled with the provision of comprehensive grants-in-aid is the recommendation pertaining to technical assistance. The Department must greatly expand and reorient its mechanism for giving technical assistance to State and local agencies in need of it.

At present, technical assistance is categorical, not comprehensive. The Task Force strongly believes that there will be an increasing need for teams of technical experts who can, on request, establish a base of operations in a community, region, or State to assist in the planning and implementation of environmental protection programs. The Department will have to fill this need.

Such technical assistance teams will require special appropriations within the Department's overall budget, and tens, perhaps hundreds, of millions of dollars will be required to permit them to provide the quantity and quality of assistance necessary.

Through the assignment of such teams, the Department will not only be able to make sure that State and local agencies have direct access to the best available technical knowledge, but it will also help to overcome the manpower problem caused by the present concentration of skilled environmental health manpower within the Federal Government. Until other efforts to correct the manpower shortage begin to take effect, the Federal Government will be, in effect, supplementing the meager staffs of State and local agencies which now find themselves ill equipped to carry on even the most modest and limited environmental protection program.

It is appropriate at this point to consider what are the responsibilities of State and local agencies with respect to environmental health protection. Broadly, the Task Force sees these responsibilities for State agencies:

1. To provide adequate statutory authority for the creation of pollution control and abatement agencies; plan for preventive programs on a State-wide basis; coordinate regional, metropolitan, local, and interlocal efforts to plan and carry out programs of prevention and abatement;
2. To coordinate State agencies whose functions and activities relate to environmental protection;

3. To carry out State-wide enforcement and compliance programs;
4. To develop model codes for local adoption;
5. To provide technical resources and assistance to local governments to aid them in carrying out their programs;
6. To enter into interstate compacts aimed at the control or prevention of environmental hazards.

Local agencies should assume responsibility for these types of activity:

1. To plan, develop, and create surveillance and enforcement programs appropriate to the jurisdiction involved and consistent with State and national goals;
2. To construct and operate such facilities as are required to meet the objectives of environmental protection programs.

Grants-in-aid from the Department of Health, Education, and Welfare should be sufficiently comprehensive and generous to provide ample support for all these kinds of State and local activity. Moreover, Federal technical assistance teams must be able to provide the best available guidance and information so that State and local agencies can wisely and effectively plan and carry out these activities.

A system of inducements to compliance will have to be backed up by enforcement authority at the Federal level. No matter how effective the Department of Health, Education, and Welfare may become in helping others to comply with national objectives for control of environmental hazards, there will remain circumstances and situations in which State and local efforts are ineffective and cannot secure desired degrees of compliance. In such cases, the Department must

have strong enforcement powers which it can use when all other measures fail.

As has been noted, the Department now has some authority to enforce compliance with standards for environmental protection, but its authority is critically limited. As research and development, surveillance, and basic research point to new problems and the means of solving them, the Department will have to seek, if it has not already obtained, regulatory powers to assure compliance with standards to correct new environmental problems.

An initial step in this direction could be taken immediately if the President were to issue an Executive Order directing the Secretary of Health, Education, and Welfare to coordinate efforts to control environmental hazards for which activities of the Federal Government are responsible. In this way, the Department could begin immediately, at the direction of the President, a program to obtain compliance with Departmental goals, and thus begin to develop the know-how for later use in regulatory activities.

Financial and technical assistance, supplemented by enforcement authority, constitute, in the opinion of the Task Force, the most logical and constructive approach toward achieving national compliance with the goals and objectives of the Department in the field of environmental protection. We believe that there is no reason to delay action to bring about a climate in which compliance in itself becomes a prime target for coordinated National action.

### **Supporting the System**

An Environmental Protection System will need many kinds of support. The Task Force has chosen to call attention to two: manpower and public awareness.

#### **Manpower**

The Task Force recommends that the Department of Health, Education, and Welfare determine, by 1969, the manpower require-

ments necessary to adequately supply both public and private sector needs for environmental program operations beginning in 1972 and beyond, and the means of supplying such needs.

Fundamental to an efficient program is the optimum utilization of its personnel, which in turn requires a clear definition of the aims of the organization.

Many specialists who have settled into narrow niches would welcome a challenge to apply their abilities in such a vast new area as environmental health. The Department of Health, Education, and Welfare's personnel system must be geared to filling its need for creative and productive environmental health and protection personnel. This could be done by instituting mechanisms for personnel development such as Intern Programs, on-the-job training programs, and advanced education programs.

The Task Force suggests that the Department's present Management Internship program be expanded to draw in and develop scientific and technically trained personnel. This program would have the advantage of being a recruiting and career development program mechanism which would yield the broadly experienced, scientifically-based people needed. The administrator of tomorrow will be a multi-disciplined scientist knowledgeable in the physical sciences and conversant in the social sciences. He must be able to work easily with experts in such fields as planning, transportation, sanitation, and engineering.

Dr. John Romani has pointed out that the lack of a flexible response to new threats to the environment has in large part resulted from the fact that environmental problems spread across a number of organizational boundaries. Jurisdictional confusion has caused paralysis in agencies at all levels of government.

Unfortunately, administrative teaching has dealt very little with the difficulties of management across agency boundaries. But it is clear that we must develop the ability of people to

relate across organizational boundaries for effective operation.

The Task Force recommends that the Department provide fellowships for in-service training and continued education for Department personnel in the environmental health field. A program similar in intent and operation to the sabbatical programs of universities should be implemented.

In 1962, the Report of the Committee on Environmental Health Problems to the Surgeon General recommended that 3% of the environmental health operating budget be devoted to graduate training of Public Health Service environmental health personnel. While this might be termed a desirable goal, the programs now in the Bureau of Disease Prevention and Environmental Control have fallen far short of it. The Bureau has spent less than 0.1% of its operating budget during Fiscal 1965 and 1966 for graduate training of Bureau personnel. To institute the sabbatical program which we recommend would require an estimated expenditure of 0.5% of the Bureau's operating budget. In a program having 50-60% of its personnel in professional positions, this investment would appear to be an essential minimum if the Department is to maintain the program's vitality.

Also, essential to the effectiveness of the program is an equitable distribution of graduate education to both Public Health Service Commissioned Corps and Civil Service personnel. As can be seen from the following statistics, there has been a tendency to provide graduate training for more Commissioned Corps than Civil Service personnel.

	Bureau professional staff 1966	Number receiving graduate training with Bureau support 1965	1966	Task Force's recommendation for number to be trained on sabbatical
Commissioned Corps--	1,318	72	46	130
Civil Service (GS 11 and up)-----	1,696	12	17	170
Total-----	3,014	84	63	300

As yet no adequate assessment of national environmental health manpower requirements exists. A program to make this assessment must be undertaken immediately.

The Bureau of Health Manpower of the Public Health Service is just beginning to work with the Bureau of Disease Prevention and Environmental Control on environmental health manpower requirements, as a result of the reorganization of the Public Health Service. To date, only scattered efforts have been made to fulfill specific needs in such programs as radiological health and air pollution. A more comprehensive program is needed.

The problems of environmental health are too broad and complex to be properly dealt with by any one professional group. Physicians or engineers alone are only ingredients in the proper mix of disciplines necessary for the solution of environmental health problems. Equally essential are the physical scientists, the life scientists, and the social scientists, having an awareness and an understanding of the complexity of the man-environment relationship. They should be ecologically oriented.

**The Task Force recommends that the Department promote the establishment of programs and curricula in clinical and human ecology through grants to the Nation's professional schools, such as schools of medicine, law, public health, and public administration.**

The Task Force urges that financial support be expanded for environmental health courses presently offered in schools of urban planning and design.

**The Task Force further recommends that the Department provide fellowships for State and local personnel to permit them to continue their education in environmental health fields.**

Too often, support for training and education is provided to fulfill very specific occupational needs. Training and education programs supported by the Department should be viewed as a

means of increasing long term national manpower resources. A national, rather than a parochial, view is needed.

As did the Advisory Committee on Health, Education, and Welfare Relationships with State Health Agencies, this Task Force recommends that the Department aggressively utilize the new personnel interchange provisions of P.L. 89-749 to create a cadre of environmental health planners and administrators at Federal, State, and local levels.

It is clear that while the Department must increase its support of interdisciplinary training for professionals, there is an even greater need to train sub-professionals. If we are fully to utilize our present professional manpower, they must be freed from the sub-professional work which now consumes much of their time and energy. A well planned Departmental program could train and educate both high school graduates and those who have not completed a high school education to perform much needed services as junior technicians, inspectors, and laboratory assistants to technical and administrative personnel.

Junior colleges could provide much needed training if the Department were to provide leadership in curriculum development and financial support.

#### **Public Awareness**

The main thrust of a public awareness program such as the Task Force believes should be undertaken by the Department is educational. We believe that when the public understands the significance of environmental hazards, it will be able to make wise decisions about plans and programs to control such hazards. An effort must be made to provide the public pertinent facts about environmental problems. Research findings that explain human vulnerability to certain hazards, such as x-rays or new chemical compounds, or the psychological threat of a poorly planned urban complex, need to be

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broadly disseminated and understood by the general public.

Therefore, the Task Force recommends establishment by 1968 of an integrated effort for health education and general education to create a public understanding of its environment and an increased awareness of the individual and social responsibility in reference to it.

Information which the public needs about environmental hazards and programs is scattered among myriad sources. There is no central source of information, nor any mechanism to consolidate categorical information sources so that the citizen can gain ready access to facts on which understanding must be based.

The Task Force feels that the first step in the Department's public awareness program must be the establishment of a central source of information about the environment, to which the public, as well as responsible officials and technicians, can turn for information.

Once there is a unified source of up-to-date information on the environment, it will be possible for the Department to present this information to the public in a meaningful manner. One vehicle for this presentation should be the Nation's educational systems.

Just as every school child is taught the value of personal health, he can also be taught the meaning and importance of environmental health.

The Office of Education is now working on the development of what is called "The Organic Curriculum," a proposal for complete overhaul of elementary and secondary school curriculum. Each curriculum will be a coordinated, programmed unit with a supporting system of reading material, class work, and films. Because environmental studies cut across subject lines from biology to chemistry and citizenship, they would seem ideally suited to this new form of presentation.

It is important, however, that emphasis on environmental education in the schools not await

the development of special curricula, which may involve several years of effort. The Department can begin now to help schools incorporate environmental information into existing teaching programs and courses of instruction at grade levels from kindergarten through high school.

A logical extension of this effort would be to adult education classes, where the importance of environmental health should be communicated to mature people whose experience may not have made them well aware of environmental hazards.

There is also a need for a better training in environmental health and related fields at the higher level of our educational system.

While our educational system must play a major role in creating public awareness of environmental hazards, at any one time the greater proportion of our population is not participating in academic pursuits, and it is essential that those who are not in school be reached with the facts about environmental hazards.

Everyone is familiar with the phrase—"Every little bit hurts." Public service campaigns of this kind should be developed for many of the environmental hazards about which the public is ill-informed. A program must be devised that makes effective use of the mass media to alert the public to its responsibility to understand and seek to correct environmental hazards.

Furthermore, the Department must give maximum attention to encouraging balanced commentary on environmental problems in newspapers, magazines, the broadcast media, and all other medias of public discussion and information.

The proposed Environmental Information Clearing House and other offices within the environmental health program will publish a great deal of material specifically devoted to environmental health problems. An effort must be made to insure that, where relevant, environmental health problems and programs are appropriately presented in publications produced by

the Welfare Administration, Office of Education, and other components of the Department that must aid in the public awareness effort the Task Force feels is essential.

Earlier in this Chapter, it was pointed out that public attitudes toward environmental problems need to be changed. The Task Force feels that the best method of achieving this ob-

jective is to provide to the public sound, comprehensive information. Undoubtedly, the Department's efforts to mount an effective program for prevention and control of environmental hazards will fail if it does not have the support of the American people. Through informational and educational efforts, and through them alone, the Department can gain the support it needs.



## Chapter IV

# AN ENVIRONMENTAL PROTECTION ACT

GREATER, better directed, and more coordinated action must be taken by the Federal government at this time if the environmental health of the Nation is to be restored and, finally, conserved.

This Report sets out Action Goals which are within short-term reach. It outlines general objectives that would enable the Department of Health, Education, and Welfare to cope with future circumstances. Combined, these recommendations provide the Department with the weapons necessary to maintain the quality of environment which the Nation needs.

However, while many of the recommendations can be implemented under authority now vested in the Department (Appendix III), it would appear that much new authority from Congress will be needed.

The Task Force strongly urges the Secretary to develop a legislative proposal to send to the President, for submission to Congress, which will contain requests for needed additional environmental management authority.

Such an Environmental Protection Act should contain the authority needed to implement the major recommendations in this report. However, the Secretary's legislative proposal should be considered inclusive, rather than exclusive. Other recommendations not made in

this Report may have equal validity and an appropriate place in such an Act.

Further, not all of the recommendations in this Report requiring new legislative authority are addressed in this Chapter. What the Task Force has done here is to outline seven principal areas for legislative action which relate to the goals and objectives of Chapters II and III.

It is important for a number of reasons that the President seek new legislation in the area of environmental health in one clearly identifiable and titled proposal.

First, the United States must take unified action against environmental hazards. The environment is a delicately balanced system which must be managed with great care. This sentiment was expressed almost universally by the scholars and experts who appeared before the Task Force. We are convinced that the ecology of man must be better understood if we are to make progress toward our goal of restoration of the environment. No longer is it possible to attack various hazards as individual and unique problems. A unified Environmental Protection Act must stress the concept of ecology and its implications.

Secondly, the Task Force believes that a well-publicized Environmental Protection Act sent by the President to the Congress will do much to promote public awareness of environmental

health problems. The American public is well aware of the problems of air and water pollution. But, in the opinion of the Task Force, the people are uninformed about many other environmental hazards. A Presidential legislative proposal and message to the Congress would help inform the American public of the overall environmental health problem.

Finally, the Environmental Protection Act would further demonstrate the Administration's determination to maintain the quality of our environment. As stated earlier in the Report, the present and inchoate dangers from environmental hazards are among the most acute domestic issues facing the country. A unified legislative package would demonstrate that more will be done.

Following are the Task Force recommendations for inclusion in an Environmental Protection Act.

#### **Council of Ecological Advisors**

Human ecology is the study of the interaction of man and his environment. When man disturbs one aspect of that environment without regard to the impact on other elements of nature's system, he runs the risk of disturbing the delicate balance of nature and thus of endangering the environment which sustains him. A well known example is the tragedy of Lake Erie. As a result of the constant dumping of organic wastes, over-demands on the oxygen content of the waters, and death of the self-cleansing elements in the lake, the once clear waters of Lake Erie are foul.

The natural environment surrounding us is of the greatest possible importance to man; if he destroys it, he destroys himself.

For this reason, the Task Force is agreed that it is of the utmost importance to the American people that the President have the constant, well-informed advice and program coordination which a Council of Ecological Advisors would provide. With the creation of such a Council,

the President and the Nation would be advised of the best possible information on the state of our environment; therefore, they would be better able to conserve it.

The concept of a Council of Ecological Advisors is analogous to the Council of Economic Advisors which now serves the President. It would provide the President with an overview of the various Department and agency environmental programs and would coordinate them. It should represent all the various economic, social, and industrial entities involved in the day-to-day dialog of presently preserving environmental quality.

The composition of the Council should be broad enough to represent all the disciplines of knowledge required to make wise and meaningful decisions about environmental protection needs, policies, and programs. At a minimum, these range from biology to economics, from psychology to physics, and from engineering to public administration.

The Council would maintain information on the state of the environment and provide the President and executive agencies with the most up-to-date analysis. The Task Force believes that it is also imperative that the Executive Branch has a coordinating mechanism with the power and authority of the White House behind it.

#### **Authority to Abate Environmental Hazards**

The Task Force has determined that the Secretary of Health, Education, and Welfare must have the authority to abate environmental hazards that are beyond the regulatory control of government at the State or local level. Such authority now exists for air pollution and for water pollution. (The Secretary of the Interior is responsible for Federal action to abate water pollution.)

It is clear that present Federal authority for abatement of environmental hazards is too limited and must be broadened to encompass all

hazards in the environment which constitute an actual or potential threat to human health or welfare. It is also clear that the States and municipalities of this Nation will have to vastly augment their capacity to abate environmental hazards on their own initiative and in cooperation with the Federal Government where this is appropriate.

The Task Force does not believe that the Federal Government either could or should exercise exclusive authority for the control of environmental hazards. One of the major conclusions of this Report is that the Department needs to strive vigorously to strengthen the environmental protection capabilities of States, municipalities, counties, and intrastate and interstate regions.

However, we are firmly convinced that the Federal Government, too, needs more effective and comprehensive authority so that the American people can be assured of protection from environmental hazards which are beyond the control of agencies below the Federal level. This principle is clearly set forth in Federal legislation dealing with air and water pollution. It must be extended to the total range of actual and potential environmental hazards.

The Congress has repeatedly indicated its conviction that primary responsibility for control of environmental hazards should rest with State and local governments, and the Task Force sees no need to depart from this point of view. The need rather is to expand it, to make it applicable to all forms of environmental hazard, to create a national program for the most meaningful use of enlightened governmental action to protect the people and preserve the environment on which their health and welfare depends.

#### **Technical Assistance Program Within the Department of Health, Education, and Welfare**

During our inquiry, the Task Force was informed time and time again about the shortage

of trained environmental health personnel working at the local level.

Local elected officials decried their inability to hire well trained personnel because of the nationwide shortage of such people. They suggested that the Department of Health, Education, and Welfare would perform an essential service if it could provide assistance teams of qualified professionals to local units of government—where the problems of public health, disposal of the mountains of waste, and clogged air are acute. The Task Force agrees, and it adds the suggestion that State and local agencies should take stock of their employment systems to make certain that they are designed to attract and keep the best available professional workers in environmental health fields.

The Task Force suggests that the Secretary seek authorizing legislation to establish a program in which teams of trained professional people could be sent to work under local supervision as employees of the requesting unit of government, and be directly responsible to local officials. Such professionals should be drawn from within an agency of the Department established for this purpose and supplemented with individuals from universities and other institutions—public and private. They would be paid by the Department at salaries, and with benefits, sufficient to attract them to the assignment. Each assignment would be temporary and for a finite period—no longer than two years is suggested.

A technical assistance system operating within the Department would be roughly analogous to the foreign assistance teams organized and maintained by the United States Government in foreign nations at the request of the host country. They would provide service and expertise to areas unable to obtain the services on their own.

The Task Force wishes to emphasize that the technical assistance teams should not be groups of traveling experts who flow in and out of an area, leaving only advice in their wake. Mayors and State officials have informed us that they

need no more advice. What they need are men and women with ability to plan, manage, and carry out effective programs.

The Task Force urges that the Department, through scholarships and other activities, be more aggressive in developing professionals and sub-professionals with skills to manage environmental control programs in cities, counties, and States. But, until the supply of skilled people meets the increasing demand, we believe that a technical assistance program, conceived and executed on as wide a scale as possible, is essential if the quality of our environment is to be restored.

#### ***The Department of Health, Education, and Welfare's Environmental Health Role Within the Federal Establishment***

Many Federal Departments and agencies conduct programs which affect the environment, but only the Department of Health, Education, and Welfare has a mandate from Congress to protect the health and welfare of the American people. Therefore, the Task Force believes it is imperative that the Secretary of Health, Education, and Welfare seek authority to determine the health effects of the program activities of the other Federal departments and agencies.

Legislative authority should be sought to supplement the Executive Order suggested in Chapter III in order that the Department's mandate to protect the health of the citizens of the United States extend to the surveillance and control of Federal activities which relate to environmental health.

#### ***Consumer Protection***

The Task Force urges the Secretary to seek legislative authority for consumer protection.

Numerous Acts of Congress have made various agencies of the Government responsible for pieces of the total consumer protection picture, but needed comprehensive legislation does not

exist. The Secretary should seek authority to perform research on all phases of the production, distribution, and use of consumer goods to determine whether the public health or welfare is in any way jeopardized by products or services which the citizen has a right to know are safe. After he determines that a danger exists for the public, the Secretary should have the legal power to issue safety standards pertaining to consumer protection, and apply such standards to the manufacture, distribution, marketing, or use of such consumer products.

Such authority would allow for implementing the recommended Goal on synthetic materials and chemicals. It would also allow for appraisal of general consumer items so that the Goal pertaining to consumer protection could be met.

Obviously, any legislation of this kind should define classes of materials and products to be subjected to regulation and should exclude products and materials that are unquestionably harmless.

#### ***Functional and Multiple Grant Authorization***

The Department and other Departments and agencies administer a number of grant programs which provide funds to State and local governmental units to aid their efforts at controlling and restoring our environment.

Officials who desire to establish a coordinated attack on environmental disease and decay must apply to various Federal agencies administering grant programs. The present system has been described to the Task Force members as being time consuming, repetitive, and confusing. And, in addition, applying officials often find they accept funds which must be committed to projects having a low priority, while high priority projects go unfunded. The reason? The Federal granting agencies which have funds for which a particular city is eligible often cannot support programs that the officials are most interested in.

The Task Force believes that it would be wiser to allow State and local officials greater discretion in the use of funds they receive from the Federal Government for environmental protection activities. Such an approach is now being initiated under authority of the Partnership for Health program of the Public Health Service. This means of grant support for State and local health programs effectively does away with the limitations inherent in a categorical approach to health services, and permits the agency receiving grant funds to use them where they can do the most good, rather than in line with rigid formulas that do not reflect changing health problems and needs.

The Task Force believes strongly that the same concept can and should be applied to the allocation of Federal funds for State and local programs in the area of environmental protection.

This can be done through a functional or multiple grant program.

Under such a system, local agencies of government would submit an overall environment restoration plan which, if approved, would allow them to utilize the funds received flexibly and in response to changing priorities. Such a system will need authority from Congress. The role of such a funding mechanism is an important aspect of the compliance program described in Chapter III.

### **Developmental Research Contracting Authority**

A major element required for successfully improving the quality of our environment is the large-scale employment of the Nation's industrial know-how through a technological development program.

As discussed in the preceding Chapters, the Department has undertaken broad basic research programs dealing with health and the environment. But these have largely been grant-supported studies at universities of the biological

cal effects and clinical aspects of environmental insults.

This approach must be balanced by concentrating equally on developmental research which would enable the modification and control of environmental hazards.

The Department now has legal authority to enter into contracts with industry. The Air Pollution Center and other programs have to a limited extent used this authority.

But the Task Force feels that the absence of stated Congressional authority and intent regarding the Department's relationship to, and use of, industry to solve environmental problems further weakens the Department's resolve to take advantage of the Nation's industrial know-how. It is evident that the Public Health Service, for example, is less than enthusiastic about drawing on industrial resources through contractual arrangements. The Task Force believes that a firm statement of Congressional intent would enable the Department comprehensively to mount an effective industry-government effort toward development of improved systems and hardware, as well as knowledge, for environmental protection.

Unquestionably, it has hindered industry from coming forth with unsolicited proposals designed to solve environmental problems.

If the developmental research program described in Chapter III is to be carried out, the Environmental Protection Act must contain provisions for broadened contractual authority to be used by the Department. The authority, by citation, is patterned after the Department of Defense's research contract authority. Since this authority expires in Fiscal 1968, specific long-term authorization is needed.

The recommendations which the Task Force have made require a complete review and a continuing study of the many facets of our environment. To make our environment safe and adequate to the needs of the Nation, the problems of the future as well as those of the present must be recognized.

A concept of administration and control must be devised which will serve the Nation, not only in solving present problems, but providing the framework to meet the problems of the future.

The Task Force believes that an Environmental Protection Act will help accomplish this objective.

#### **Assess Present Authority**

The process of developing an Environmental Protection Act would provide an opportunity for a necessary review of existing Federal legislation pertaining to control of environmental hazards. The Task Force believes that present authorizations dealing with air pollution, solid waste disposal, food protection, and other seg-

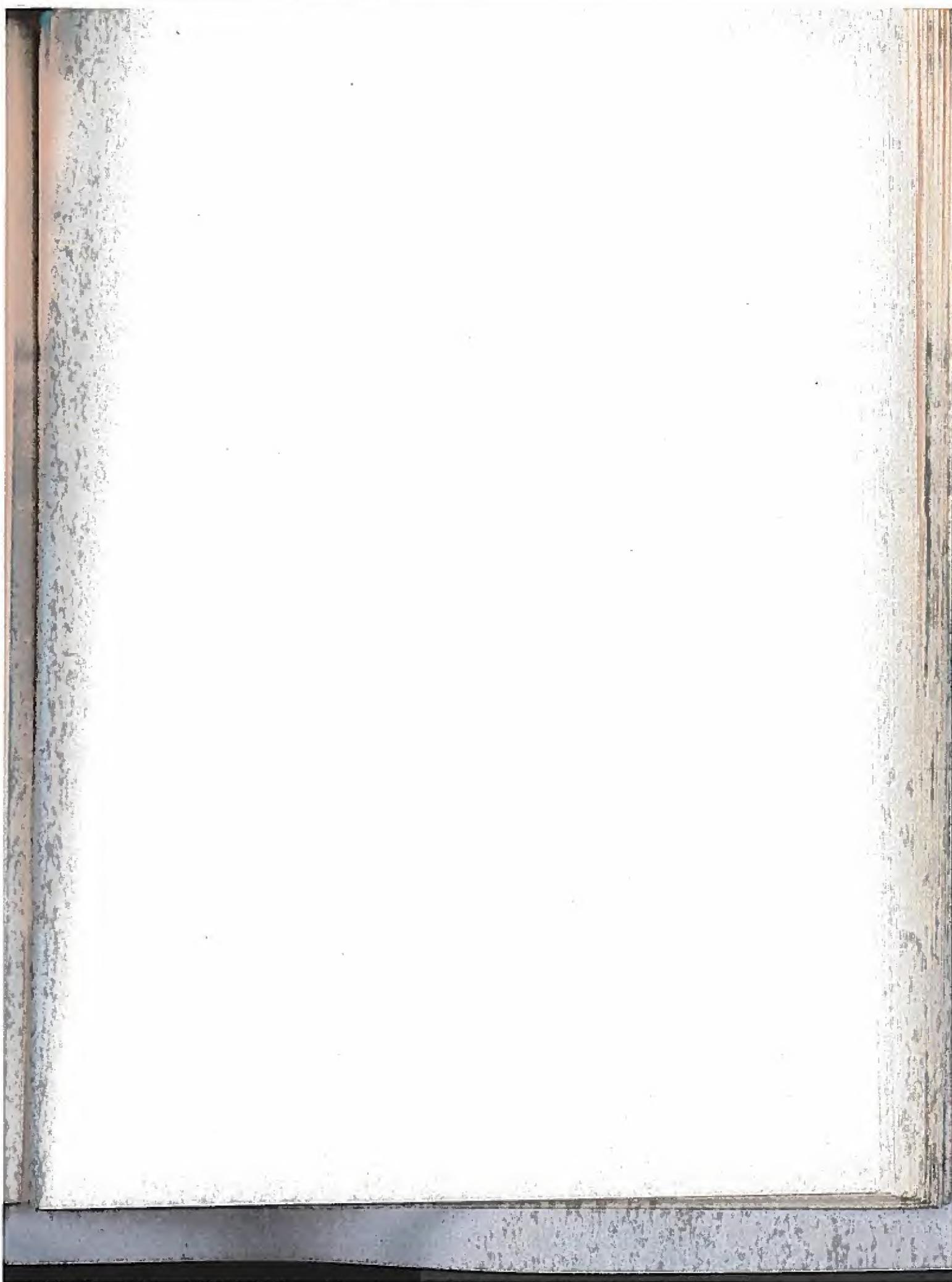
ments of the total field of environmental protection should be reexamined, and if necessary modified, to make them consistent with the comprehensive approach toward environmental health protection which we believe must be taken.

It seems likely that the Congress would want to exercise a continuing review of the Department's legislative authority and programs dealing with environmental protection. This the Task Force believes to be both necessary and highly desirable as a further means of assuring that the Department of Health, Education, and Welfare is fully equipped to discharge its responsibility for the health and well being of the American people and their environment.

**APPENDICES**

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## **APPENDIX I**

**TASK FORCE STAFF, PARTICIPANTS IN CONFERENCES, MEETINGS, FEDERAL OFFICIALS INTERVIEWED, AND RESPONDENTS TO REQUESTS FOR COMMENTARIES.**

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## Appendix I

### A

#### SECRETARY'S TASK FORCE ON ENVIRONMENTAL HEALTH AND RELATED PROBLEMS



RON. M. LINTON, *Chairman*  
*Director of Special Projects*  
*Urban America, Inc.*  
*Washington, D.C.*



SAMUEL LENHER  
*Vice President*  
*E. I. duPont de Nemours & Co.*  
*Wilmington, Delaware*



ANNE DRAPER  
*Research Associate*  
*AFL-CIO Research Department*  
*Washington, D.C.*



HAROLD L. SHEPPARD, PH.D.  
*Staff Social Scientist*  
*W. E. Upjohn Institute for*  
*Employment Research*  
*Washington, D.C.*



JOHN J. HANLON, M.D.  
*Director of Public Health*  
*City of Detroit & Wayne County*  
*Detroit, Michigan*



RAYMOND R. TUCKER  
*Professor of Urban Affairs*  
*Washington University*  
*St. Louis, Missouri*

## Appendix I B

### TASK FORCE STAFF

WILLIAM E. MIRON, JR.  
*Staff Director*

JAMES A. LEE  
*Research Director*

KENNETH FLIEGER  
*Executive Secretary*

GARY R. FRINK  
*Special Counsel*

MARY L. TERPAK  
*Assistant to the Chairman*

### RESEARCH ASSOCIATES

RALPH GOLDEN MARC JACOBS

LOUIS V. LOMBARDO ROBERT SAUER JAMES L. TRAWICK\*

### STAFF ASSOCIATES

NORMAN BREDESEN  
WARREN GILBERTSON

WILLIS HYDAKER  
MARION VAN LANDINGHAM

### CONSULTANTS

Tufty and Associates  
HAROLD G. TUFTY

Quadri Science, Inc.  
RALPH E. LAFF  
HAROLD C. UREY  
EDWARD L. TATUM  
HENRY TAUBE

Harold F. Wise/Robert Gladstone & Associates  
HUGH MILLOS

JAMES R. KLOMOSKI, *Chairman*  
Department of Political Science  
University of Oregon

## Appendix II

### C

### CONFERENCES

The following individuals participated in conferences held by the Task Force from December 1966 through February 1967 in five cities throughout the United States.

#### BOSTON CONFERENCE

December 15/16, 1966

Dr. JACK BRESSLER  
*Assistant Provost*  
Tufts University

DR. GERALD CAPLAN, *Professor*  
*of Clinical Psychiatry*  
Harvard University

JOHN C. COLLINS, M.S.  
*Director and Chief Sanitary*  
*Engineer, Division of*  
*Sanitary Engineering*  
*Massachusetts Department*  
*of Health*

Dr. ROBERT BURDEN, *Professor*  
*of Civil and Sanitary Engineering*  
Harvard University

\*Deceased, January 15, 1967.

WILLIAM A. DOERFLER, JR.  
Associate Dean for Development  
Graduate School of Design,  
Harvard University

DR. LEO FRIEDMAN, Professor  
of Nutrition and Food Safety  
Massachusetts Institute of  
Technology

HAROLD J. HARDY, M.D.  
Assistant Medical Director  
Occupational Medical Services  
Massachusetts Institute of  
Technology

DR. GLENN R. HILST  
Vice President  
Travelers' Research Center, Inc.  
Hartford, Connecticut

ROBERT M. JENNY, President  
Jenny Manufacturing Co.  
and Chairman, Transportation  
Committee, Greater Boston  
Chamber of Commerce

DR. ROSS McFARLAND  
Guggenheim Professor of  
Aerospace Health and Safety  
Harvard University

EMMANUEL G. MESTHENE, Professor  
Program on Technology and  
Society, Harvard University

DR. DADE W. MOELLER  
Associate Director  
Kresge Center for  
Environmental Health  
School of Public Health,  
Harvard University

DR. HAROLD A. THOMAS, Professor  
of Civil and Sanitary Engineering  
Harvard University

## DETROIT CONFERENCE

January 12/13, 1967

DR. JAY A. BOLT  
Professor of Mechanical  
Engineering  
University of Michigan

DR. FRED W. BOWDITCH  
Staff Engineer  
General Motors Corporation  
Detroit, Michigan

GERALD COLEMAN  
Executive Director  
Supervisors' Intercounty  
Committee  
Detroit, Michigan

HONORABLE JOHN D. DINGELL  
U.S. House of Representatives  
Washington, D.C.

PAT GREATHOUSE  
Vice President  
United Automobile  
Workers of America  
Detroit, Michigan

CHARLES A. HEINEN  
Chrysler Motors, Inc.  
Detroit, Michigan

DR. MORTON S. HILBERT  
Associate Professor of  
Environmental Health  
School of Public Health  
University of Michigan

DONALD A. JENSEN  
Ford Motor Company  
Detroit, Michigan

DR. HAROLD J. MAGNUSON  
Professor of Industrial Health  
School of Public Health  
University of Michigan

THE HON. MEL JEROME RAVITZ  
Common Council  
Detroit, Michigan

DR. JOHN HENRY ROMANI  
Assistant Dean  
School of Public Health  
University of Michigan

DR. RALPH SMITH, Dean  
Department of Occupational  
Health  
Wayne State University Medical  
School

JOSEPH BOBOVITZ  
Executive Director  
San Francisco Bay Conservation  
and Development Commission  
San Francisco, California

DR. LESTER BRESLOW, Director  
State Department of Public Health  
Berkeley, California

## BERKELEY CONFERENCE

January 30/31, 1967

DR. SEYMOUR M. FARBER  
Dean of Educational Services and  
Director of Continuing Education  
University of California Medical  
Center, San Francisco, California

DR. ARTHUR FURST, Director  
Institute of Chemical Biology  
University of San Francisco

DR. RALPH GIRARD  
Dean of Graduate Division  
University of California  
Irvine, California

P. H. McGAUHEY, Professor  
Richmond Field Station  
University of California  
Richmond, California

DR. EMIL MRAK, *Chancellor*  
University of California  
Davis, California

DR. CHARLES SMITH, *Dean*  
School of Public Health  
University of California  
Berkeley, California

FRANK STEAD, *Chief*  
Environmental Sanitation  
State Department of Public Health  
Berkeley, California

JAN STEVENS  
*Deputy Attorney General*  
State of California  
San Francisco, California

### LOS ANGELES CONFERENCE

February 2/3, 1967

DR. LESLIE CHAMBERS, *Director*  
Hancock Foundation  
University of Southern California

DR. B. D. CULVER, *Manager*  
Aerojet General Corporation  
Los Angeles, California

LOUIS FULLER  
*Air Pollution Control Officer*  
Los Angeles County

JUDSON HARMON  
*Sr. Engineer*  
Engineering Sciences, Inc.  
Sunnyvale, California

DR. PETER KAMNITZER  
*Associate Professor of*  
*Architecture*  
University of California  
Los Angeles, California

DR. KENNETH T. LARKIN  
*Director of Engineering*  
Lockheed Missile and  
Space Corporation  
Los Angeles, California

DR. K. WILLIAM LEFFLUND  
*Associate Dean*  
School of Public Administration  
University of Southern California

DR. MORRIS NEIBURGER  
*Professor of Meteorology*  
University of California  
Los Angeles, California

JOHN T. PARKHURST  
*Chief Engineer*  
Los Angeles County  
Sanitation Districts  
Los Angeles, California

DR. ROBERT S. PODGRUND  
*Associate Professor of*  
*Public Health*  
School of Medicine  
University of California  
Los Angeles, California

### NEW YORK CITY CONFERENCE

February 9/10, 1967

DR. BRUCE BARTON  
Bureau of Applied Social Research  
Columbia University

DR. JACK ELINSON  
*Professor of*  
*Administrative Medicine*  
School of Public Health  
Columbia University

DR. RENE' DUBOS  
Rockefeller Institute  
New York, New York

AUSTIN HELLER, *Commissioner*  
Department of  
Air Pollution Control  
City of New York

HONORABLE JOHN LINDSAY  
*Mayor*  
City of New York

DR. WALSH McDERMOTT  
*Professor of Public Health*  
Cornell University  
Medical College

DR. NORTON NELSON  
*Provost*  
New York University  
Medical Center  
Bronx, New York

DR. MARVIN PERKINS  
*Commissioner*  
Mental Health Services  
City of New York

NORMAN P. ROSS  
*Vice President*  
General Learning Corporation  
New York, New York

DR. MERVYN SUSSEX  
School of Public Health  
Columbia University

DR. HENRY WILLS  
*Executive Secretary*  
Committee on Pest Control  
New York State  
Health Department  
Albany, New York

## Appendix I

### D

#### MEETINGS

The following individuals participated in one or more meetings with the Task Force and staff during the course of the Task Force study.

DR. GAYLORD ANDERSON, Dean  
School of Public Health  
University of Minnesota

ROBERT ALEX BABON  
Executive Vice President  
Citizens for a Quieter City, Inc.  
New York, New York

RICHARD BOND  
School of Public Health  
University of Minnesota

DAVID A. CRANE, Chairman  
Civic Design Program  
Graduate School of Fine Arts  
University of Pennsylvania

MR. RICHARD W. C. FALKNER  
Senior Member  
Leo Kramer, Inc.  
Washington, D.C.

Lewis R. FIBEL  
Specialist in  
Occupational Education  
American Association  
of Junior Colleges  
Washington, D.C.

GERSHON W. FISHBEIN  
Publisher  
Environmental Health Letter  
Washington, D.C.

Woodrow GINSBURG  
Director of Research  
International Union Department,  
AFL-CIO, Washington, D.C.

DR. M. LAWRENCE HEIDEMAN, JR.  
Institute for  
Environmental Studies  
University of Pennsylvania

DR. LAWRENCE HINKLE, JR.  
Professor of Medicine  
Cornell University Medical Center

ALLEN V. KNEESE, Director of  
Water and Environmental Studies  
Resources for the Future, Inc.  
Washington, D.C.

DR. MARTIN LOEB, Director  
School of Social Work  
University of Wisconsin

WALTER LYNN, Professor  
Department of Engineering  
Cornell University

THOMAS LYONS  
Assistant Director  
Planned Parenthood Association  
Washington, D.C.

MISS LAURA OLSON,  
Legislative Assistant to  
Senator Ernest Gruening  
Washington, D.C.

HAROLD J. PAULUS, Professor  
School of Public Health  
University of Minnesota

DON K. PRICE, Dean  
John F. Kennedy School of  
Government  
Harvard University

HENRY REINING, Dean  
University of Southern California  
School of Public Administration  
Los Angeles, California

OTTO SILHA, Regent  
University of Minnesota  
Minneapolis, Minnesota

DR. DAVID SENCER, Director  
Communicable Disease Center  
Atlanta, Georgia

DR. ATHELSTAN SPILHAUS  
University of Minnesota  
Minneapolis, Minnesota

DR. CONRAD STRAUB  
School of Public Health  
University of Minnesota

RICHARD C. THOMPSON  
Staff Consultant  
President's Committee on  
Mental Retardation  
Washington, D.C.

FRANK VERBRUGGE, Dean  
Institute of Technology  
Minneapolis, Minnesota

DR. HENRY F. VAUGHAN, President  
National Sanitation Foundation  
Ann Arbor, Michigan

WALTER K. VIVRETT  
Director, Experimental City  
Project  
University of Minnesota

MEL WEISBURD, Manager  
Environmental Health Systems  
Systems Development Corporation  
Santa Monica, California

DR. ABEL WOLMAN  
Johns Hopkins University  
Baltimore, Maryland

## Appendix I

### E

#### FEDERAL OFFICIALS CONTACTED

The following Federal officials were interviewed by the Staff of the Task Force during the course of the Task Force Study.

##### Department of Agriculture

JOHN BAKER  
Assistant Secretary

LAURENCE I. HEWES  
Office of Natural Resources  
Conservation and Development

##### Atomic Energy Commission

DR. CHARLES L. DUNHAM, Director  
Division of Biology and Medicine

##### Department of Commerce

DR. EDWARD K. SMITH  
Deputy Assistant Secretary  
for Economic Policy

DR. HARRIS B. STEWART, JR.,  
Director  
Institute of Oceanography  
Environmental Science  
Service Administration

##### Department of Defense

DR. DONALD M. MACARTHUR  
Deputy Director  
Defense Research and Engineering  
RODNEY W. NICHOLS  
Special Assistant to the  
Deputy Director  
(Research and Technology)

##### Office of Economic Opportunity

DR. JOSEPH T. ENGLISH  
Acting Director for Health Affairs  
ROBERT PERRIN  
Assistant Director  
Interagency Relations

##### Department of Health, Education, and Welfare

EARL ARNOLD, Program Officer  
Bureau of Disease Prevention and  
Environmental Control

MRS. BERNICE L. BERNSTEIN,  
Regional Director  
New York, New York

PHILIP BROUGHTON  
Special Assistant to the Director  
Bureau of Disease Prevention and  
Environmental Control

DR. MURRAY BROWN, Chief  
Occupational Health  
National Center for Urban and  
Industrial Health

RICHARD W. BUNCH  
Executive Officer  
Bureau of Health Manpower

DR. JOHN B. CALHOUN  
National Institute for Mental  
Health

REGINALD G. CONLEY  
Associate General Counsel

DR. DONALD CHADWICK, Director  
National Center for Chronic  
Diseases

DEAN W. COSTON  
Deputy Under Secretary

CHARLES C. CUSTARD  
Budget Officer  
National Center for Urban  
and Industrial Health

DR. VIRON L. DIEFENBACH  
Director  
Division of Dental Health  
Bureau of Health Manpower

DR. ALAN DONALDSON  
Associate Director  
Bureau of Disease Prevention and  
Environmental Control

SIDNEY EDELMAN  
Office of the General Counsel

DR. BERNARD H. FOX, Chief of  
Experimental Research  
Injury Control Program  
National Center for Urban and  
Industrial Health

DR. LEO J. GEHRIG  
Deputy Surgeon General  
Public Health Service

DR. JAMES L. GODDARD  
Commissioner  
Food and Drug Administration

DR. EUGENE H. GUTHRIE  
Assistant Surgeon General for  
Operations  
Public Health Service

JOHN F. HARDESTY  
Information Officer  
Occupational Health Program  
National Center for Urban  
and Industrial Health

FRANCIS JACOCKS  
Acting Chief  
Urban Environmental Health  
Planning  
National Center for Urban  
and Industrial Health

**CHARLES F. KENT, Chief**  
 Water Supply and  
 Sea Resources Program  
 National Center for Urban and  
 Industrial Health  
  
**JOHN H. KELSO**  
 Executive Officer  
 Office of the Surgeon General  
 Public Health Service  
  
**DR. PAUL KOTIN, Director**  
 Environmental Health Sciences,  
 National Institutes of Health  
  
**DR. MILO D. LEAVITT, JR.**  
 Deputy Assistant Secretary  
 for Science and Population  
 Office of Assistant Secretary  
 for Health and Scientific Affairs  
  
**DR. WILLIAM C. LORING**  
*Urban Sociologist*  
 Environmental Health Planning  
 Section, National Center for  
 Urban and Industrial Health  
  
**DR. BURROUGH MIDER, Director**  
*of Laboratories and Clinics*  
 National Institutes of Health  
  
**DR. JOHN MIDDLETON, Director**  
 National Center for  
 Air Pollution Control  
  
**JOHN H. MORRISON**  
 Statistician  
 Epidemiology and Surveillance  
 Injury Control Program  
 National Center for Urban  
 and Industrial Health  
  
**LYMAN MOORE**  
 Executive Officer  
 Bureau of Disease Prevention and  
 Environmental Control  
  
**DR. FRED NEVINS, Director**  
 Office of Planning & Evaluation  
 Bureau of Disease Prevention and  
 Environmental Control  
  
**DR. RICHARD A. PRINDLE, Director**  
 Bureau of Disease Prevention and  
 Environmental Control  
  
**DR. CHARLES RICE, Director**  
 Toxicology Information Program  
 National Library of Medicine

**EDWARD J. ROURKE**  
 Office of the General Counsel  
 Public Health Division  
  
**JOSEPH SCHOCK**  
*Acting Chief*  
 Special Engineering Services  
 Branch  
 Environmental Sanitation  
 Program  
 National Center for Urban  
 and Industrial Health  
  
**DONALD SLATER**  
*Deputy Assistant Secretary for*  
*Community Development*  
  
**DR. LOUIS SPEKTER, Director**  
 Children's Bureau  
 Division of Health Services  
  
**JEROME SVORE, Director**  
 National Center for Urban and  
 Industrial Health  
  
**MISS MARY E. SWITZER**  
*Commissioner*  
 Vocational Rehabilitation  
 Administration  
  
**FLOYD TAYLOR, Chief**  
 Operations Branch,  
 Water Supply and  
 Sea Resources Program  
 National Center for Urban  
 and Industrial Health  
  
**JAMES G. TERRILL, JR., Director**  
 National Center for  
 Radiological Health  
  
**RICHARD D. VAUGHAN, Chief**  
 Environmental Sanitation Program  
 National Center for Urban  
 and Industrial Health  
  
**LEO WEAVER, Chief**  
 Solid Wastes Program  
 National Center for Urban  
 and Industrial Health  
  
**ALANSON W. WILLCOX**  
*General Counsel*  
  
**FRANK WORDEN**  
*Executive Officer*  
 Occupational Health Program  
 National Center for Urban  
 and Industrial Health

**Department of Housing and  
 Urban Development**

**WILLIAM ABENTZ**  
*Assistant Director*  
 Office of Intergovernmental  
 Relations and Urban Program  
 Coordination

**NORMAN BECKMAN, Director**  
 Office of Intergovernmental  
 Relations and Urban Program  
 Coordination

**ARCHIE BURGESS, Chief**  
 Design Service Branch

**ARTHUR A. DAVIS, Deputy Director**  
 Land and Facilities Administration

**ROBERT DUBINSKY**  
 Neighborhood Facilities Analyst

**ROBERT GREEN, Acting Director**  
 Community Organization Branch  
 Office of Relocation and Social  
 Planning Assistance

**JONATHAN B. HOWES**  
*Acting Director*  
 State and Local Programs Branch  
 Office of Assistant Secretary for  
 Metropolitan Development

**WILLIAM HURD, Deputy Director**  
 Urban Mass Transportation

**MADISON JONES, Director**  
 Office of Relocation and Social  
 Planning Assistance

**HOWARD MACKEY**  
 Low Income Housing  
 Demonstration Program

**JOHN SHIVELY, Director**  
 Redevelopment Division  
 Renewal Assistance Administration

**ABNER SILVERMAN, Director**  
 Housing Management Division  
 Housing Assistance Administration

**LEO STERNE, Acting Director**  
 Office of Rehabilitation and Codes  
 Renewal Assistance Administration

**GEORGE WILLIAMS**  
*Deputy Assistant Director*  
*for Technical Assistance for*  
*the Model Cities Program*

**Department of the Interior**

DR. JOHN L. BUCKLEY  
Office of the Science Adviser  
  
PAUL KNIGHT  
Program Support Staff  
Office of the Secretary

ROBERT W. LAMSON, Staff Assistant  
Office of the Secretary

**Department of Labor**

MRS. ESTHER PETERSON, Assistant  
Secretary

**Department of Transportation**

DAVID SCHWARTZ  
Office of Policy Planning  
for Transportation

**Appendix I****F****COMMENTARIES**

The following individuals at the request of the Task Force contributed written comments on environmental health problems.

DR. S. I. AUERBACH  
Radiation Ecology Section  
Oak Ridge National Laboratory

WILLIAM H. DRURY, JR.  
Research Director  
Hatheway School of  
Conservation Education  
Massachusetts Audubon Society

JOHN R. OLIVE, Executive Director  
American Institute of Biological  
Sciences  
Washington, D.C.

FRANK BUTRICK  
Director of Environmental  
Health Sciences  
Battelle Memorial Institute  
Washington, D.C.

DR. RALPH EMERSON  
Department of Botany  
University of California  
Berkeley, California

DAVID PIMENTEL, Head  
Department of Entomology  
College of Agriculture  
Cornell University

DR. LYNTON CALDWELL  
Professor of Public Administration  
University of Indiana

GEORGE J. KUPCHIK, Director  
Department of Environmental  
Health  
American Public Health  
Association  
New York, New York

DR. HANS POPPER  
Mount Sinai School of Medicine  
New York, New York

DR. LAMONT C. COLE  
Department of Zoology  
Cornell University  
  
DR. BARRY COMMONER, Director  
Center for the Biology of  
Natural Systems  
Washington University

DR. JOHN A. LOGAN, President  
Rose Polytechnic Institute  
Terre Haute, Indiana

DR. PAUL W. PURDOM  
Professor of Environmental  
Engineering  
Drexel Institute of Technology

PIERRE DANSEREAU, Sc. D.  
New York Botanical Garden  
Bronx, New York

DR. FRED LOSEE  
Eastman Dental Center  
Rochester, New York

DR. THERON B. RANDOLPH  
Human Ecology Research  
Foundation  
Chicago, Illinois

DR. REZNEAT M. DARNELL  
Department of Biology  
Marquette University

DR. C. J. MARHENFELD  
University of Missouri

PAUL M. REID  
Executive Director  
Detroit Metropolitan Area  
Planning Commission  
Detroit, Michigan

DR. DONALD MITCHELL  
Chicago, Illinois

riation

DR. FREDERICK SAGENT, II,  
Director  
Center for Human Ecology  
University of Illinois

DR. PAUL B. SEARS  
Yale University

DR. DEMITRI SHIMKIN  
Professor of Anthropology  
University of Illinois

JAMES H. STERNER  
Medical Director  
Eastman Kodak Co.  
Rochester, New York

DR. MYRON E. WEGMAN, Dean  
School of Public Health  
University of Michigan

DR. BILLY RAY WILSON  
Rutgers University  
New Brunswick, New Jersey

DR. DAEL WOLFLE  
Executive Director  
American Association for  
the Advancement of Science  
Washington, D.C.

GEORGE WOODWELL, Professor of  
Biology  
Brookhaven National Laboratory  
Long Island, New York

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## APPENDIX II

### A BIBLIOGRAPHY OF BASIC REFERENCE SOURCES ON ENVIRONMENTAL CONDITIONS AFFECTING PHYSICAL AND MENTAL HEALTH

#### GENERAL

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and Development to the Committee on Science  
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Representatives. 89th Congress, 2d Session.  
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#### AIR

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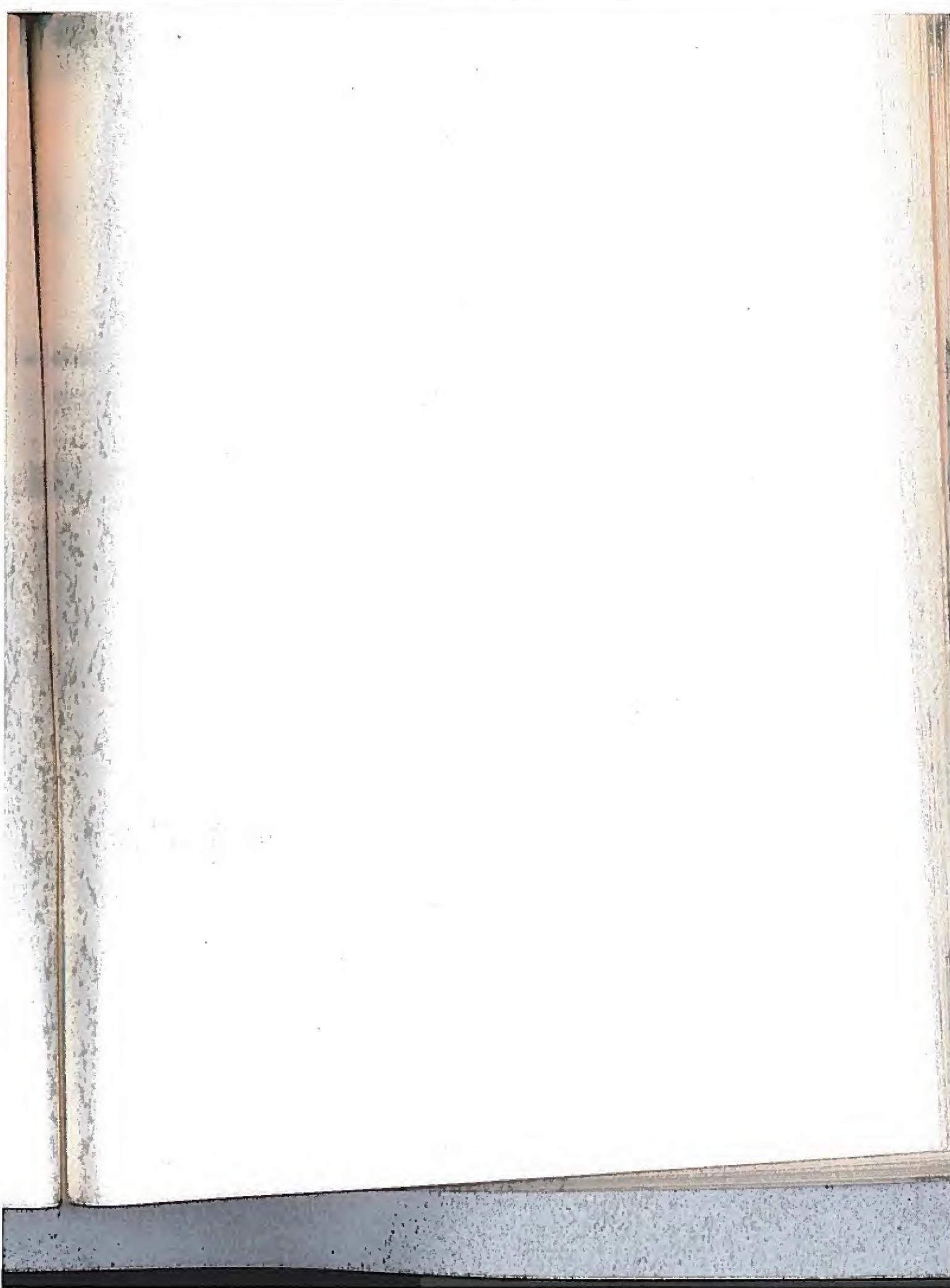
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### **APPENDIX III**

**MAJOR AUTHORITIES AND SPECIAL MANDATES FOR THE DEPARTMENT OF HEALTH, EDUCATION,  
AND WELFARE REGARDING ENVIRONMENTAL HEALTH**



## Appendix III

### A

#### GENERAL LEGISLATIVE AUTHORITY

ACCORDING to the Fiscal Year 1964 House Appropriations Hearings, the environmental health activities of the Public Health Service include the following appropriations:

Environmental health sciences  
Air pollution control  
Milk, food, interstate and community sanitation  
Occupational health activities  
Radiological health activities  
Water supply and water pollution control  
Grants for waste treatment works construction

Earlier responsibilities for (1) Environmental Engineering and Sanitation and (2) the Federal Water Pollution Control Administration were transferred elsewhere.

The major legislative authorities for the current environmental health programs are found in three Acts: (1) the Public Health Service Act (PL 410, 78th Cong., 58 Stat. 682), as amended; (2) the Clean Air Act (PL 88-206, 77 Stat. 392), as amended; and (3) the Solid Waste Disposal Act (PL 89-272, title II, 79 Stat. 997).

#### **Public Health Service Act**

"Prior to 1944 a large number of provisions relating to the functions of the Public Health Service were scattered among various Federal statutes. In 1944 a revision and consolidation of

many of these provisions into a single 'Public Health Service Act' was enacted by the Congress (Public Law 410, 78th Cong., 58 Stat. 683). Since 1944 the act has been amended frequently, placing responsibility for numerous additional programs in the Department of Health, Education, and Welfare and the Public Health Service . . ."<sup>1</sup>

#### **Clean Air Act**

"The Clean Air Act, approved December 17, 1963 (Public Law 88-206, 77 Stat. 392) provided for air pollution prevention and control activities of the Department of Health, Education, and Welfare, and for other purposes. (This act replaced the act of July 14, 1955, Public Law 159, 84th Cong., and amendments thereto of September 22, 1959, and October 9, 1962.) The 1965 amendments (Public Law 89-272, 79 Stat. 992) to the Clean Air Act require the establishment of standards for controlling the emission of pollutants from certain motor vehicles."<sup>2</sup> In October 1966 Congress again amended the Clean Air Act (Public Law 89-675, 80 Stat. 954) among other things, to add

<sup>1</sup> Compilation of Selected Public Health Laws, Including Particularly the Public Health Service Act, the Clean Air Act, the Solid Waste Disposal Act, the Mental Retardation Facilities and Community Mental Health Centers Construction Act, and the Federal Water Pollution Control Act. Wash. D.C.: US GPO, March 1966, p. III.

<sup>2</sup> Ibid. p. IV.

authorization of grants to air pollution control agencies for maintenance purposes.

### Solid Waste Disposal

"The Solid Waste Disposal Act, approved October 20, 1965 (title II of Public Law 89-272, 79 Stat. 907), authorizes a research and development program with respect to solid-waste disposal."<sup>3</sup>

### Water Pollution

It should also be pointed out that "The Water Pollution Control Act of 1948 (Public Law 845, 80th Congress, 62 Stat. 1155) was replaced by the Federal Water Pollution Control Act Amendments of 1966 (Public Law 660, 84th Cong., 70 Stat. 498) which included provisions for comprehensive programs for water pollution control; interstate cooperation; research, investigation, training; grants for water pollution control programs; grants for construction of treatment works; and enforcement measures against pollution of interstate waters. The 1961 amendments (Public Law 87-88, 75 Stat. 204) vested all functions under the act in the Secretary, and among other things expanded the enforcement authority, increased maximum grants for construction of treatment works, and authorized the establishment of field laboratory and research facilities.

"The 1965 amendments (Public Law 89-284, 79 Stat. 903) to the Federal Water Pollution Control Act established within the Department of Health, Education, and Welfare, a Federal Water Pollution Control Administration, to provide grants for research and development, to increase grants for construction of sewage treatment works, to require establishment of water quality criteria, and for other purposes."<sup>4</sup>

Water pollution programs formerly administered through the Public Health Service, until

recently, were administered through the Federal Water Pollution Control Administration. The President's Reorganization Plan No. 2 of 1966, however, transferred the Water Pollution Control Administration—except for responsibilities relating to public health—from the Department of Health, Education, and Welfare to the Department of the Interior, effective May 10, 1966. The reorganization plan also makes the Secretary, Department of Health, Education, and Welfare a member of the Advisory Board and gives him an opportunity to select a member of each hearing board.<sup>5</sup> Later in 1966, the Clean Waters Restoration Act (Public Law 89-753, 80 Stat. 1246, November 3, 1966) called for the Department of Health, Education, and Welfare to serve as a consultant for the Department of the Interior in its study of the extent of pollution in navigable waters and ways to abate such pollution. (Sec. 17.)

### Other Legislation

The legislative authority governing the Department's environmental health programs in environmental pollution, of course, is more extensive than the above acts. "A Case Study of the Utilization of Federal Laboratory Resources," for example, indicates that the legislation for research in this area ranges over several types: (1) broad legislation, such as the organic act of the Department, (2) broad legislation in the field of environmental pollution, (3) specific legislation covering a limited aspect of the subject, the establishment of a particular laboratory, et cetera, and (4) authorizations included in appropriation acts.<sup>6</sup>

<sup>3</sup> "Federal Water Pollution Control Functions," Weekly Compilation of Presidential Documents 2:9:288 (March 7, 1966).

<sup>4</sup> A Case Study of the Utilization of Federal Laboratory Resources. A Study Submitted to the Research and Technical Programs Subcommittee of the Committee on Government Operations by the Science Policy Research Division, Legislative Reference Service, Library of Congress. Committee Print. House of Representatives, 89th Cong., 2d Session. Washington, D.C., US GPO, November 1966, pp. 21, 67-72.

<sup>5</sup> *Idem.*

<sup>6</sup> *Idem.*

## Appendix III

### B

#### LEGISLATIVE AUTHORITY EXPRESSED THROUGH APPROPRIATIONS ACTS

##### Air Pollution

69 Stat. 322;  
78 Stat. 646.  
42 USC 241,  
243.

69 Stat. 322;  
78 Stat. 646.

77 Stat. 392.  
42 USC 1857  
note.

77 Stat. 392  
42 USC 1857  
note.

To carry out the Act of July 14, 1955, as amended (42 U.S.C. 1857-1857f), and for expenses necessary to carry out the purposes of sections 301 and 311 of the Act relating to air pollution, including hire, maintenance, and operation of aircraft; \$11,069,000, to remain available only until June 30, 1963.<sup>7</sup>

To carry out the Act of July 14, 1955, as amended (42 U.S.C. 1857-1857f), and for expenses necessary to carry out the purposes of sections 301 and 311 of the Act relating to air pollution, including purchase of not to exceed three passenger motor vehicles, and hire, maintenance, and operation of aircraft; \$12,954,000, to remain available only until June 30, 1964.<sup>8</sup>

To carry out the Clean Air Act, including purchase of not to exceed three passenger motor vehicles, and hire, maintenance and operation of aircraft; \$20,980,000, to be immediately available.<sup>9</sup>

To carry out the Clean Air Act, including purchase of not to exceed three passenger motor vehicles, and hire, maintenance, and operation of aircraft, \$26,087,000.<sup>10</sup>

To carry out the Clean Air Act, including purchase of not to exceed three passenger motor vehicles, and hire, maintenance, and operation of aircraft, \$35,561,000.<sup>11</sup>

<sup>7</sup> Public Law 87-582. An Act Making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1963, and for other purposes. (76 Stat. 861.) 87th Cong., 2d Session (August 14) 1962.

<sup>8</sup> Public Law 88-186. An Act Making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1964, and for other purposes. (77 Stat. 225) 88th Cong., 1st Session (October 11) 1963.

<sup>9</sup> Public Law 88-805. An Act Making appropriations for the Department of Labor, and Health, Education, and Welfare, and related agencies for the fiscal year ending June 30, 1965.

and for other purposes. (78 Stat. 970.) 88th Cong., 2d Sess. (September 19) 1964.

<sup>10</sup> Public Law 89-156. An Act Making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1966, and for other purposes. (79 Stat. 589) 89th Cong., 1st Sess. (August 8) 1965.

<sup>11</sup> Public Law 89-787. An Act Making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1967, and for other purposes. (80 Stat. 1878) 89th Cong., 2d Sess. (November 7) 1966.

### *Environmental Engineering and Sanitation*

**42 USC 264.**

To carry out sections 301, 311, and 361 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to milk, food, and community sanitation, and interstate quarantine activities, \$9,117,000.<sup>12</sup>

To carry out sections 301, 311, and 361 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to milk, food, and community sanitation, and interstate quarantine activities, \$9,842,000.<sup>13</sup>

**42 USC 241,  
243, 264.**  
**42 USC 246.**

To carry out sections 301, 311, and 361 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to milk, food, and community sanitation, and interstate quarantine activities, and to carry out the functions of the Secretary of Health, Education, and Welfare under the Solid Waste Disposal Act of 1965 (79 Stat. 997), \$21,963,000.<sup>14</sup>

75 Stat.

**42 USC 3251  
note.**

75 Stat.

### *Environmental Health Sciences*

**42 USC 246.**

To carry out, except as otherwise provided for, sections 301, 311 and 314(c) of the Act with respect to environmental health and arctic health activities, \$4,224,000.<sup>15</sup>

75 Stat.

**42 USC 241,  
243, 246.**

To carry out, except as otherwise provided for, sections 301, 311, and 314(c) of the Act with respect to environmental health and arctic health activities, \$9,350,000.<sup>16</sup>

To carry out, except as otherwise provided for, sections 301, 311, and 314(c) of the Act with respect to environmental health and arctic health activities, \$15,983,000.<sup>17</sup>

**42 USC 241,  
243, 246.**

To carry out, except as otherwise provided for, sections 301, 311, and 314(c) of the Act with respect to environmental health and arctic health activities, \$24,298,000.<sup>18</sup>

79 Stat. 1

88 USC 4

88 USC 4

79 Stat. 1

40 USC a.

### *Federal Water Pollution Control Administration*

For construction, alteration, and equipment of facilities, including acquisition and development of sites, planning, architectural, and engineering

<sup>12</sup> op. cit. PL 88-605.  
<sup>13</sup> op. cit. PL 89-156.  
<sup>14</sup> op. cit. PL 89-787.  
<sup>15</sup> op. cit. PL 88-186.

<sup>16</sup> op. cit. PL 88-605.  
<sup>17</sup> op. cit. PL 89-156.  
<sup>18</sup> op. cit. PL 89-787.

<sup>19</sup> Idem.

<sup>20</sup> op. cit. PL

<sup>21</sup> op. cit. PL

services, and for measures to control acid mine drainage, \$4,624,000, to remain available until expended: *Provided*, That such unexpended balances as the Secretary of Health, Education, and Welfare may determine to be available as of June 30, 1966, in the appropriation for "Buildings and facilities," Public Health Service, for water pollution control activities shall be merged with this appropriation.<sup>19</sup>

***Grants for Waste Treatment Works Construction and Sewer Overflow Control***

75 Stat. 206.

For payments under section 6 of the Water Pollution Control Act, as amended (33 U.S.C. 466e), \$90,000,000.<sup>20</sup>

75 Stat. 206.

For payments under section 6 of the Water Pollution Control Act, as amended (33 U.S.C. 466e), \$90,000,000: *Provided*, That allotments under such section 6 for the current fiscal year shall be made on the basis of \$100,000,000: *Provided further*, That none of the sums allotted to a State shall remain available for obligation after December 31, 1964.<sup>21</sup>

75 Stat. 206.

For payments under section 6 of the Water Pollution Control Act, as amended (33 U.S.C. 466e), \$90,000,000: *Provided*, That allotments under such section 6 for the current fiscal year shall be made on the basis of \$100,000,000: *Provided further*, That none of the sums allotted to a State shall remain available for obligation after December 31, 1965.<sup>22</sup>

For payments under section 6 of the Water Pollution Control Act, as amended (33 U.S.C. 466e), \$91,000,000: *Provided*, That allotments under such section 6 for the current fiscal year shall be made on the basis of \$100,000,000: *Provided further*, That none of the sums allotted to a State shall remain available for obligation after December 31, 1966.<sup>23</sup>

79 Stat. 905.  
88 USC 466c-1  
88 USC 466e  
79 Stat. 5.  
40 USC app. 212

For grants and contracts for waste treatment works construction, and for research and development under section 6 of the Water Pollution Control Act, as amended, to remain available until expended, \$173,000,000, of which \$20,000,000 shall be for grants and contracts pursuant to section 6 of such Act, \$150,000,000 shall be for grants for construction of sewage treatment works pursuant to section 8 of such Act, and \$3,000,000 shall be for grants for construction of sewage treatment works pursuant to section 212 of the Appalachian Regional Development Act of 1965 (Public Law 89-4).<sup>24</sup>

<sup>19</sup> *Idem.*

<sup>20</sup> op. cit. PL 87-582.

<sup>21</sup> op. cit. PL 88-186.

<sup>22</sup> op. cit. PL 88-805.

<sup>23</sup> op. cit. PL 89-156.

<sup>24</sup> op. cit. PL 89-787.

### *Milk, Food, Interstate, and Community Sanitation*

**42 USC 241**

**243, 264.**

**42 USC 246.**

To carry out sections 301, 311, and 361 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to milk, food, and community sanitation, and interstate quarantine and arctic health activities, including purchase of not to exceed two passenger motor vehicles, \$8,536,000.<sup>25</sup>

**42 USC 241,**

**243, 264.**

**42 USC 246.**

To carry out sections 301, 311, and 361 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to milk, food, and community sanitation, and interstate quarantine activities, including purchase of not to exceed two passenger motor vehicles, \$9,009,000.<sup>26</sup>

### *Occupational Health*

To carry out sections 301, and 311 of the Act, and for expenses for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to occupational health, \$4,122,000.<sup>27</sup>

To carry out sections 301 and 311 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to occupational health, \$4,990,000, of which \$500,000 shall be available for the continuation of the study of pulmonary diseases of coal miners.<sup>28</sup>

To carry out sections 301 and 311 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to occupational health, \$5,163,000.<sup>29</sup>

To carry out sections 301 and 311 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to occupational health, \$5,857,000.<sup>30</sup>

To carry out sections 301 and 311 of the Act, and for expenses necessary for demonstrations and training personnel for State and local health work under section 314(c) of the Act, with respect to occupational health, \$6,592,000.<sup>31</sup>

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<sup>25</sup> *op. cit. PL 87-582.*

<sup>26</sup> *op. cit. PL 88-186.*

<sup>27</sup> *op. cit. PL 87-582.*

<sup>28</sup> *op. cit. PL 88-186.*

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<sup>29</sup> *op. cit. PL 88-605.*

<sup>30</sup> *op. cit. PL 89-156.*

<sup>31</sup> *op. cit. PL 89-787.*

### *Radiological Health*

To carry out sections 301, 311, and 314(c) of the Act, with respect to radiological health, including grants for training of radiological health specialists; purchase of not to exceed four passenger motor vehicles of which two shall be for replacement only; and hire, maintenance, and operation of aircraft; \$15,875,000, of which \$1,500,000 shall be available only for allotments and payments to States pursuant to such section 314(c) for the establishment and maintenance of adequate radiological public health services.<sup>32</sup>

To carry out sections 301, 311, and 314(c) of the Act, with respect to radiological health, including grants for training of radiological health specialists; purchase of not to exceed three passenger motor vehicles of which one shall be for replacement only; and hire, maintenance, and operation of aircraft; \$19,145,000, of which \$2,000,000 shall be available only for allotments and payments to States pursuant to such section 314(c) for the establishment and maintenance of adequate radiological public health services.<sup>33</sup>

42 USC 246.

To carry out sections 301, 311, and 314(c) of the Act, with respect to radiological health, including grants for training of radiological health specialists; purchase of not to exceed two passenger motor vehicles of which one shall be for replacement only; and hire, maintenance, and operation of aircraft; \$19,598,000, of which \$2,500,000 shall be available only for allotments and payments to States pursuant to such section 314(c) for the establishment and maintenance of adequate radiological public health services.<sup>34</sup>

42 USC 246.

To carry out sections 301, 311, and 314(c) of the Act, with respect to radiological health, including grants for training of radiological health specialists; purchase of not to exceed one passenger motor vehicle; and hire, maintenance, and operation of aircraft; \$21,044,000, of which \$2,500,000 shall be available only for allotments and payments to States pursuant to such section 314(c) for the establishment and maintenance of adequate radiological public health services.<sup>35</sup>

To carry out sections 301, 311, and 314(c) of the Act, with respect to radiological health, including grants for training of radiological health specialists; purchase of not to exceed one passenger motor vehicle for replacement only; and hire, maintenance, and operation of aircraft; \$20,895,000 of which \$2,500,000 shall be available only for the establishment and maintenance of adequate radiological public health services.<sup>36</sup>

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<sup>32</sup> op. cit. PL 87-582.  
<sup>33</sup> op. cit. PL 88-186.  
<sup>34</sup> Op. cit. PL 88-605.

<sup>35</sup> op. cit. PL 89-156.  
<sup>36</sup> op. cit. PL 89-787.

### **Water Supply and Water Pollution Control**

**70 Stat. 498.  
75 Stat. 205,  
206.**

To carry out sections 301, 311, and 361 of the Act with respect to water supply and water pollution control, and to carry out the Federal Water Pollution Control Act, as amended (33 U.S.C. 466-466d, 466f-466k), \$24,707,000, including \$4,700,000 for grants to States and \$300,000 for grants to interstate agencies under section 5 of the Federal Water Pollution Control Act as amended.<sup>37</sup>

**42 USC 241,  
243, 264.**

To carry out sections 301, 311, and 361 of the Act with respect to water supply and water pollution control, and to carry out the Federal Water Pollution Control Act, as amended (33 U.S.C. 466-466d, 466f-466k), \$28,980,000, including \$4,700,000 for grants to States and \$300,000 for grants to interstate agencies under section 5 of the Federal Water Pollution Control Act, as amended, and of which \$500,000 shall be available for the comprehensive study of the Ohio River basin.<sup>38</sup>

**42 USC 241,  
243, 264.**

To carry out sections 301, 311, and 361 of the Act with respect to water supply and water pollution control, and to carry out the Federal Water Pollution Control Act, as amended (33 U.S.C. 466-466d, 466f-466k), \$35,009,000, including \$4,700,000 for grants to States and \$300,000 for grants to interstate agencies under section 5 of the Federal Water Pollution Control Act, as amended.<sup>39</sup>

**70 Stat. 498.**

To carry out sections 301, 311, and 361 of the Act with respect to water supply and water pollution control, and to carry out the Federal Water Pollution Control Act, as amended (33 U.S.C. 466-466d, 466f-466k), \$44,514,000, including \$4,700,000 for grants to States and \$300,000 for grants to interstate agencies under section 5 of the Federal Water Pollution Control Act, as amended.<sup>40</sup>

**70 Stat. 498.  
88 USC 465  
note.**

For expenses necessary to carry out the Federal Water Pollution Control Act, as amended, and other related activities, including \$4,700,000 for grants to States and \$300,000 for grants to interstate agencies under section 7 of such Act, \$55,439,000: *Provided*, That the unobligated balance of funds appropriated under this head in the Department of Health, Education, and Welfare Appropriation Act, 1966, for constructing acid mine drainage control measures, shall remain available during the current fiscal year and shall be transferred to the appropriation for "Buildings and facilities."<sup>41</sup>

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<sup>37</sup> op. cit. PL 87-582.  
<sup>38</sup> op. cit. PL 88-186.  
<sup>39</sup> op. cit. PL 88-605.

<sup>40</sup> op. cit. PL 89-156.  
<sup>41</sup> op. cit. PL 89-787.

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## Appendix III

### PRESIDENTIAL MANDATES

#### *Control of Pollution Originating From Federal Activities*

By Executive Order 11288 dated July 2, 1966, the President of the United States charged the heads of the departments, agencies, and establishments of the Executive Branch of the Government—including the Department of Health, Education, and Welfare—with providing leadership in the nationwide effort to improve water quality through prevention, control, and abatement of water pollution from Federal Government activities in the United States. In addition, he assigned the Department of Health, Education, and Welfare a responsibility in advising and assisting the Secretary of the Interior in a comprehensive study of, and the development of corrective actions for, the problem of water pollution within the United States caused by the operation of vessels.<sup>43</sup>

Similarly, another Executive Order, No. 11282, dated May 26, 1966 required all Federal agencies to take steps to prevent and control air pollution from Federal installations. The head of each agency was also charged with submitting an orderly schedule to the Bureau of the

Budget by July 1, 1967, for bringing all existing installations up to the required standards. The Executive Order not only gave the Department of Health, Education, and Welfare the responsibility for issuing precise standards limiting emissions from Federal buildings and facilities (pursuant to the Clean Air Act), but it also directed that the Department, together with the Department of Interior, explore with the Bureau of the Budget the feasibility of increasing the Federal effort to find a solution to the sulfur emission problem.<sup>44</sup>

Furthermore, through a memorandum, the President also directed the Heads of Departments and Agencies and Establishments of the Executive Branch of Government, consistent with the performance of their mission and the relevant legislation, to take into explicit and due account aircraft noise whenever it is relevant to any of their programs or to action in which they may participate, and to cooperate with the Secretaries of the Department of Transportation and the Department of Housing and Urban Development in efforts to control and reduce the problems of aircraft noise.<sup>45</sup>

<sup>43</sup> "Control of Water Pollution Originating from Federal Installations. Executive Order 11288. July 2, 1966." Weekly Compilation of Presidential Documents 2:21:696 (May 30) 1966.

<sup>44</sup> "Control of Air Pollution Originating from Federal Installations." Weekly Compilation of Presidential Documents 2:21:696 (May 30) 1966.

<sup>45</sup> "Aircraft noise and land use near airports." Weekly Compilation of Presidential Documents 3:12:527 (March 27) 1967.

## **Water Pollution**

1. On February 26, 1966, the President appointed several members of the Department of Health, Education, and Welfare to a Task Force to study anti-pollution programs in the Federal Republic of Germany. The group completed a trip to Germany for this purpose on March 10, 1966.

2. Subsequent to the transfer of the Federal Water Pollution Control Administration to the Department of Interior, that Department and the Department of Health, Education, and Welfare signed an interdepartmental agreement concerning consultation between these two departments. Also signed by the President on September 1, 1966, this agreement binds the Public Health Service, Department of Health, Education, and Welfare to responsibilities relating to the following:

- (a) Consulting with the head of the Administration on public health aspects of water pollution, including chemical, biological, and radiological contaminants.
- (b) Conducting a variety of studies on the human health aspects of water pollution.
- (c) Exchanging information, pertinent data and research results with the Federal Water Pollution Control Administration.
- (d) Appointing a liaison representative to the Department of the Interior.<sup>46</sup>

## **Air Pollution**

1. In keeping with responsibilities provided in the Clean Air Act, the officials of the Depart-

<sup>46</sup> "Health aspects of water pollution control. Interdepartmental agreement concerning consultation between Departments of Health, Education, and Welfare and the Interior. September 2, 1966." Weekly Compilation of Presidential Documents 2:86:1195 (September 5) 1966.

ment of Health, Education, and Welfare and the officials of the District of Columbia, Maryland, and Virginia were invited by the President September 8, 1966, to consult with one another on interstate air pollution in the National Capital area.<sup>47</sup>

2. The President's memorandum to relevant agencies urging increased research and development programs and study of economic effects and incentives for industry cooperation, April 21, 1967, directed the Secretary of the Department of Health, Education, and Welfare to inform the Congress of an additional \$2.7 million supplemental request in 1967 for research on controlling pollution from sulfur oxides. Additionally, the Secretary was asked to develop a plan to encourage the coal, oil, and power industries to contribute substantially towards those parts of the directed and targeted research which relate to the desulfurization or other means of utilizing fossil fuels in accordance with existing and potential control regulations.<sup>48</sup>

## **Occupational Health**

The President directed the Secretary of Health, Education, and Welfare to make an intensified study of all occupational health problems and to report to him what the government can do (1) to isolate and eliminate the hazards to occupational health that now exist, and (2) to test new products and processes so that precautions can be taken to prevent health hazards before they occur.<sup>49</sup>

<sup>46</sup> "Air Pollution Abatement in the National Capital Area." Weekly Compilation of Presidential Documents 2:86:1268 (September 12) 1966.

<sup>47</sup> "Air pollution control. The President's memorandum to relevant agencies urging increased research and development programs and study of economic effects and incentives for industry cooperation. April 21, 1967." Weekly Compilation of Presidential Documents 3:16:851 (April 24) 1967.

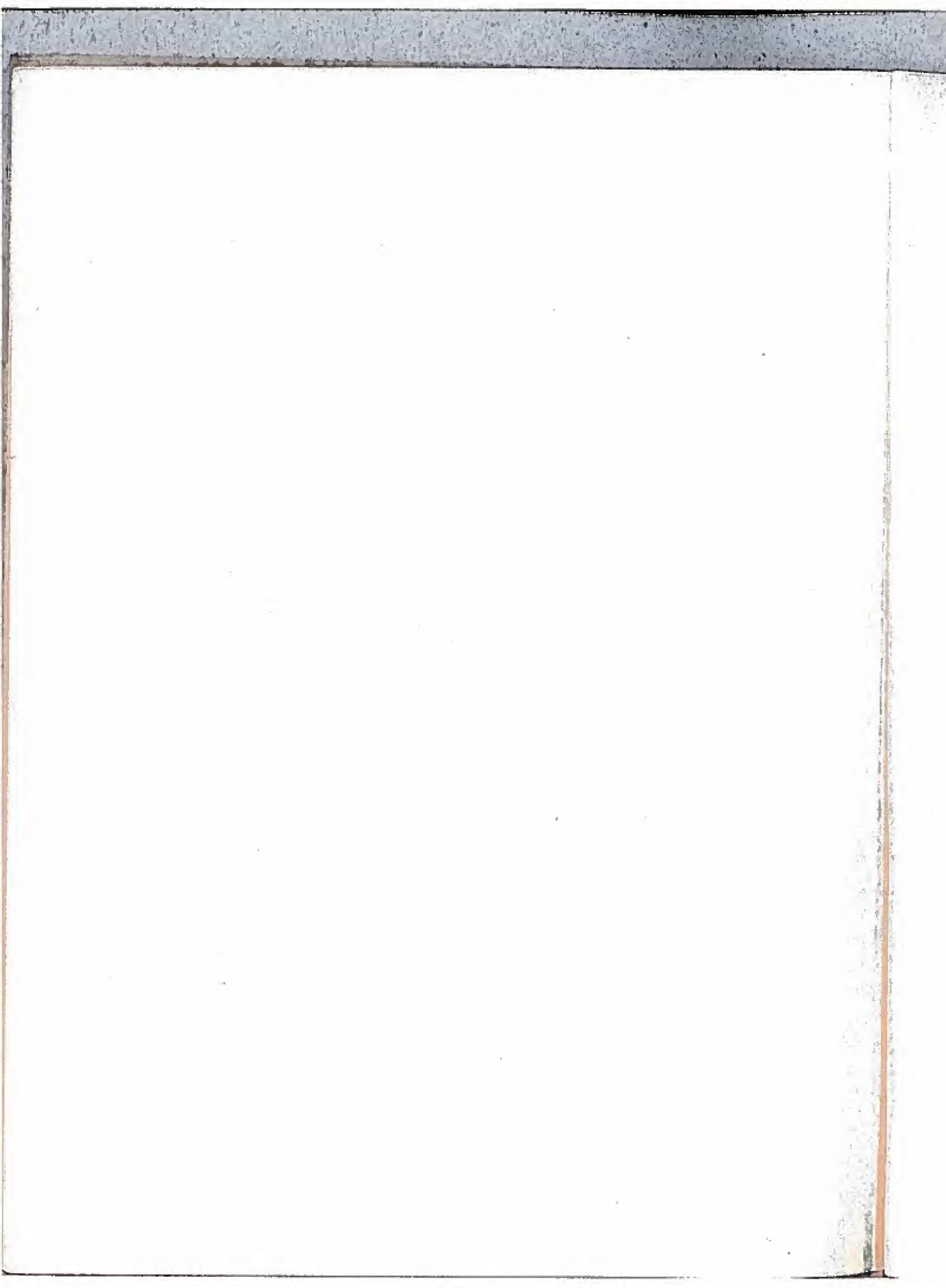
<sup>48</sup> "International Labor Press Association. The President's Remarks to Members of the Association in the East Room. May 28, 1966." Weekly Compilation of Presidential Documents 2:21:682 (May 20) 1966.

## Appendix III

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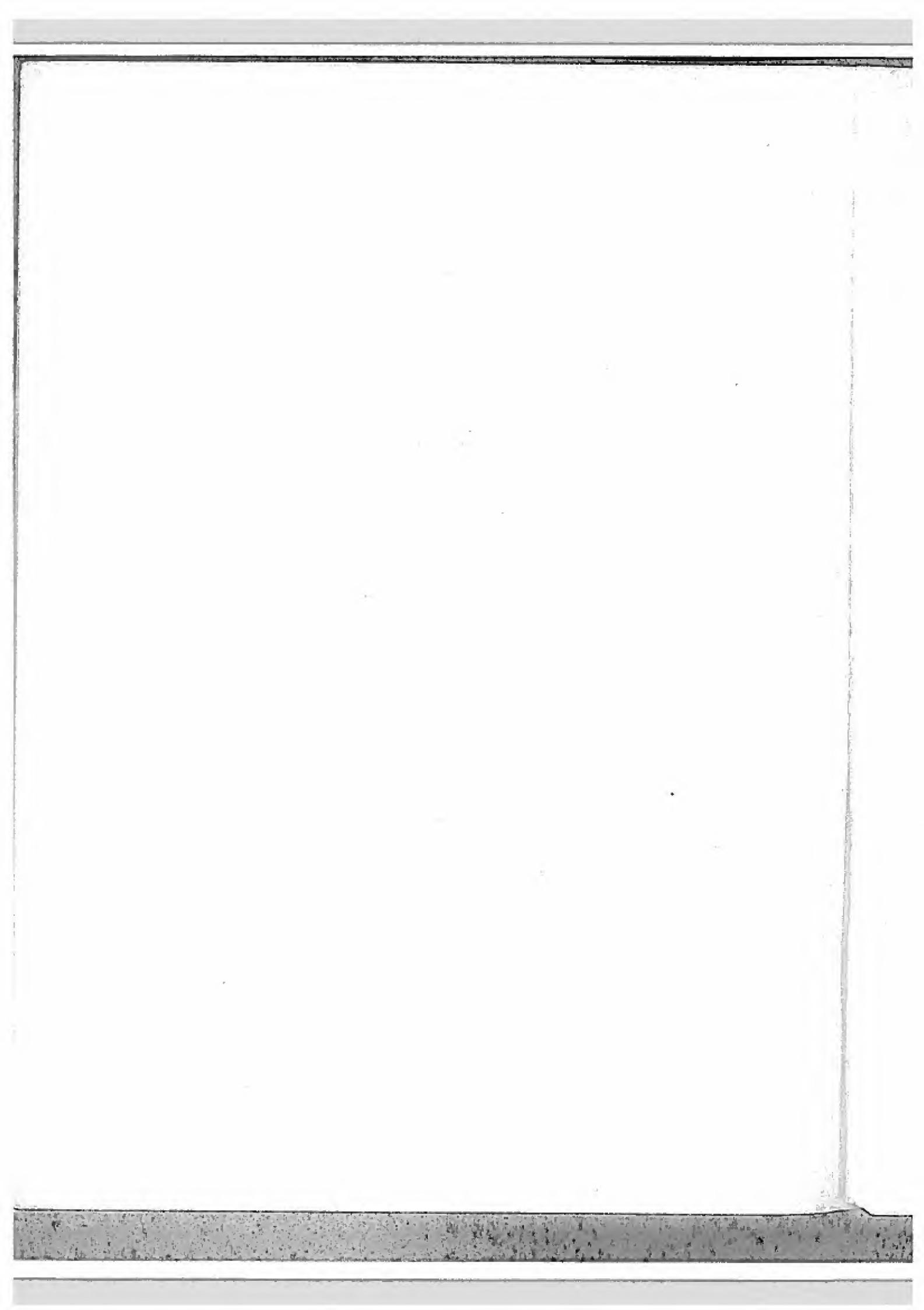
#### DHEW EXPENDITURES FOR ENVIRONMENTAL HEALTH (DIRECT OPERATIONS, GRANTS & CONTRACTS)

SOLID WASTES	Fiscal Year 1967	Fiscal Year 1968	PESTICIDES	Fiscal Year 1967	Fiscal Year 1968
Direct Operations.	\$3,322,000	\$4,517,000	Direct Operations.	\$4,010,000	\$4,348,000
Grants-----	8,027,000	10,005,000	Grants-----	1,200,000	1,810,000
Contracts-----	846,000	1,080,000	Contracts-----	3,224,000	3,224,000
<b>OCCUPATIONAL HEALTH</b>					
Direct Operations.	3,193,000	3,901,000	ENVIRONMENTAL HEALTH SCIENCES CENTER		
Grants-----	3,219,000	3,979,000	Direct Operations.	\$2,002,000	4,649,000
Contracts-----	378,000	643,000	Grants, Total....	11,320,000	15,966,000
<b>INJURY CONTROL</b>			Research.....	(7,016,000)	(10,421,000)
Direct Operations.	2,159,000	2,268,000	Training.....	(4,304,000)	(5,545,000)
Grants-----	2,020,000	2,041,000			
Contracts-----	715,000	982,000	<b>FOOD AND DRUG ADMINISTRATION</b>		
<b>ARCTIC HEALTH</b>			Direct Operations.	58,148,000	61,296,000
Direct Operations.	1,113,000	1,333,000	Grants, Research..	190,000	317,000
<b>FOOD AND WATER</b>			Contracts, Total...	3,088,000	5,453,000
Direct Operations.	4,424,000	4,631,000	Research.....	(2,370,570)	(4,471,000)
Grants-----	5,325,000	6,500,000	Training.....	(169,500)	(240,000)
Contracts-----	50,000	95,000	Support.....	(357,930)	(425,000)
<b>RADIOLOGICAL HEALTH</b>			<b>BIOLOGICAL STANDARDS</b>		
Direct Operations.	11,015,000	11,067,000	Direct Operations.	6,515,000	6,374,000
Grants-----	2,332,000	2,328,000	Contracts, Re- search.....	1,975,000	2,275,000
Contracts-----	2,376,000	2,292,000			
<b>CHRONIC DISEASES</b>			<b>AIR POLLUTION</b>		
Direct Operations.	12,142,000	12,407,000	Direct Operations.	14,637,000	20,218,000
Grants-----	4,074,000	4,512,000	Grants-----	17,686,000	34,018,000
Contracts-----	8,886,000	11,023,000	Contracts-----	6,902,000	9,949,000
<b>COMMUNICABLE DISEASES</b>			<b>SPECIAL ENVIRONMENTAL HAZARDS</b>		
Direct Operations.	38,482,000	39,193,000	Direct Operations.	447,000	469,000
Grants-----	11,275,000	11,522,000	Contracts-----	150,000	150,000
Contracts-----	10,052,000	12,175,000			



## **APPENDIX IV**

### **GENERAL INFORMATION**



## Appendix IV

### A

#### POTENTIAL INTERSTATE AIR POLLUTION SOURCE AREAS

The following is a listing of interstate (including areas adjacent to State boundaries) and international air pollution source areas in which the Air Pollution Center has reason to believe sufficient pollution exists to warrant an abatement plan. This listing includes areas where observation, surveillance, or surveys are underway or may be undertaken by the Abatement Branch, Division of Air Pollution. The listing is alphabetical and does not indicate priority as to order of importance.

1. Allentown-Bethlehem-Easton, Pennsylvania-New Jersey
2. Augusta, Georgia-South Carolina
3. Beaumont-Port Arthur, Texas-Louisiana
4. Binghamton, New York-Pennsylvania
5. Bluefield, West Virginia-Virginia
6. Bogalusa, Louisiana-Mississippi
7. Bristol, Tennessee-Virginia
8. Buffalo, New York-Ontario, Canada
9. Chattahoochee, Florida-Georgia
10. Chattanooga, Tennessee-Georgia
11. Cheyenne, Wyoming-Colorado
12. Chicago S.M.S.A., Illinois-Indiana
13. Clarkston-Lewiston, Washington-Idaho
14. Columbus, Georgia-Alabama
15. Davenport-Rock Island-Moline, Iowa-Illinois
16. Detroit-Windsor, Michigan-Ontario, Canada
17. Draper, North Carolina-Virginia
18. Dubuque, Iowa-Wisconsin-Illinois
19. Duluth-Superior, Minnesota-Wisconsin
20. East Liverpool, Ohio-West Virginia
21. El Paso, Texas-New Mexico-Mexico
22. Evansville, Indiana-Kentucky
23. Fall River, Massachusetts-Rhode Island
24. Fargo-Moorhead, North Dakota-Minnesota
25. Fernandina Beach-St. Marys, Florida-Georgia
26. Fort Smith, Arkansas-Oklahoma
27. Grand Forks-East Grand Forks, North Dakota-Minnesota
28. Huntington-Ashland, West Virginia-Kentucky-Ohio
29. Ironton, Ohio-Kentucky
30. Joplin, Missouri-Kansas
31. Kansas City, Missouri-Kansas
32. La Crosse, Wisconsin-Minnesota
33. Las Vegas, Nevada-Arizona
34. Lawrence-Haverhill, Massachusetts-New Hampshire
35. Lebanon-White River Junction, New Hampshire-Vermont
36. Liberal, Kansas-Oklahoma

37. Luke-Keyser, Maryland-West Virginia
38. Mahweh, New Jersey-New York
39. Marinette-Menominee, Wisconsin-Michigan
40. Memphis, Tennessee-Arkansas
41. Natchez-Vidalia, Mississippi-Louisiana
42. Needles-Davis Dam, California-Arizona
43. New York S.M.S.A., New York-New Jersey-Connecticut
44. Omaha, Nebraska-Iowa
45. Ortonville, Minnesota-South Dakota
46. Owensboro, Kentucky-Illinois
47. Paducah, Kentucky-Illinois
48. Parkersburg-Marietta, West Virginia-Ohio
49. Philadelphia, Pennsylvania-New Jersey
50. Portland, Oregon-Washington
51. Portsmouth, Ohio-Kentucky
52. Providence-Pawtucket, Rhode Island-Massachusetts
53. St. Croix River, Minnesota-Wisconsin
54. St. Joseph, Missouri-Kansas
55. St. Louis, Missouri-Illinois
56. Savannah, Georgia-South Carolina
57. Selbyville-Bishop, Delaware-Maryland
58. Sioux City, Iowa-Nebraska
59. Spokane, Coeur d'Alene, Washington-Idaho
60. Springfield-Chicopee-Holyoke, Massachusetts-Connecticut
61. Steubenville-Weirton, Ohio-West Virginia
62. Stillwater, Minnesota-Wisconsin
63. Texarkana, Texas-Arkansas
64. Ticonderoga-Shoreham, New York-Vermont
65. The Dalles, Oregon
66. Toledo, Ohio-Michigan
67. Trenton, New Jersey-Pennsylvania
68. Washington, D.C.-Maryland-Virginia
69. Westerly-Pawcatuk, Rhode Island-Connecticut
70. Wheeling, West Virginia-Ohio
71. Wilmington, Delaware-New Jersey-Maryland
72. Winona, Minnesota-Wisconsin
73. Youngstown-Warren, Ohio-Pennsylvania
74. Yuma, Arizona-California
75. McAllen-Edenburg-Pharr, Texas (Hidalgo County)

## Appendix IV

### B

#### STATUS OF INTERSTATE CARRIER WATER SUPPLIES

April 25, 1967

<i>State</i>	<i>Num- ber of Sup- plies Ap- proved</i>	<i>Popula- tion Served</i>	<i>Num- ber of Sup- plies Not fully Ap- proved</i>	<i>Popula- tion Served</i>	<i>State</i>	<i>Num- ber of Sup- plies Ap- proved</i>	<i>Popula- tion Served</i>	<i>Num- ber of Sup- plies Not fully Ap- proved</i>	<i>Popula- tion Served</i>
<b>REGION I</b>									
Connecticut.....	7	906, 800	1	36, 200	Alabama.....	9	874, 800	2	119, 000
Maine.....	7	186, 300	1	21, 000	Florida.....	22	2, 203, 450	10	148, 725
Massachusetts....	10	1, 063, 400	7	584, 700	Georgia.....	9	792, 500	18	841, 450
New Hampshire....	3	122, 600	-	-	Mississippi.....	5	118, 500	11	241, 500
Rhode Island....	1	289, 509	2	51, 075	South Carolina....	5	166, 200	8	640, 200
Vermont.....	2	58, 400	1	8, 800	Tennessee.....	3	1, 085, 000	4	246, 200
	30	2, 627, 009	12	701, 775		53	5, 240, 450	53	2, 237, 075
<b>REGION II</b>									
Delaware.....	6	31, 000	1	160, 000	Illinois.....	21	1, 112, 100	7	4, 621, 160
New Jersey.....	25	2, 405, 423	5	927, 441	Indiana.....	8	924, 500	1	9, 000
New York.....	25	3, 078, 144	5	8, 080, 885	Michigan.....	29	4, 117, 215	3	12, 600
Pennsylvania....	13	3, 696, 443	14	422, 246	Ohio.....	23	5, 141, 100	5	11, 400
	69	9, 211, 010	25	9, 599, 572	Wisconsin.....	12	1, 352, 491	1	48, 300
						93	12, 647, 406	17	4, 702, 460
<b>REGION III</b>									
District of Columbia.....	1	1, 205, 000	-	-	Iowa.....	10	614, 600	1	22, 200
Kentucky.....	11	947, 710	2	50, 200	Kansas.....	8	508, 200	1	25, 000
Maryland.....	7	1, 681, 400	-	-	Minnesota.....	9	1, 090, 424	-	-
North Carolina...	13	1, 131, 930	2	6, 000	Missouri.....	11	2, 043, 000	-	-
Puerto Rico....	4	998, 705	1	50, 000	Nebraska.....	9	562, 872	-	-
Virginia.....	19	1, 621, 920	3	57, 750	North Dakota..	10	201, 200	-	-
West Virginia...	6	143, 505	5	156, 400	South Dakota...	4	116, 700	-	-
	61	7, 730, 170	13	320, 350		61	5, 136, 996	2	47, 200

**STATUS OF INTERSTATE CARRIER WATER SUPPLIES**  
**April 25, 1967—Continued**

<i>State</i>	<i>Number of Supplies Approved</i>	<i>Population Served</i>	<i>Number of Supplies Not fully Approved</i>	<i>Population Served</i>	<i>State</i>	<i>Number of Supplies Approved</i>	<i>Population Served</i>	<i>Number of Supplies Not fully Approved</i>	<i>Population Served</i>
<b>REGION VII</b>									
Arkansas.....	5	376,000	-----	-----	REGION I.....	30	2,627,009	12	701,775
Louisiana.....	33	1,800,584	1	300	REGION II.....	69	9,211,010	25	9,599,572
New Mexico.....	6	266,250	1	36,000	REGION III.....	61	7,730,170	13	320,350
Oklahoma.....	5	706,200	1	15,500	REGION IV....	53	5,240,450	53	2,237,075
Texas.....	69	5,135,267	6	56,000	REGION V....	93	12,647,406	17	4,702,460
<b>REGION VIII</b>									
Colorado.....	5	801,300	6	149,000	REGION VI....	61	5,136,996	2	47,200
Idaho.....	6	116,700	-----	-----	REGION VII....	118	8,084,301	9	107,800
Montana.....	11	215,200	1	10,700	REGION VIII....	30	1,719,800	14	480,021
Utah.....	4	482,600	3	292,700	REGION IX....	108	11,241,578	24	520,482
Wyoming.....	4	104,000	4	27,621		623	63,638,720	169	18,716,735
<b>REGION IX</b>									
Alaska.....	8	76,450	5	18,716					
Arizona.....	4	536,000	2	221,000					
California.....	53	7,760,410	5	69,600					
Hawaii.....	4	329,000	1	5,206					
Nevada.....	7	110,600	-----	-----					
Oregon.....	10	705,800	4	83,760					
Washington.....	22	1,723,318	7	122,200					
	108	11,241,578	24	520,482					

**SUMMARY**

REGION I.....	30	2,627,009	12	701,775
REGION II.....	69	9,211,010	25	9,599,572
REGION III.....	61	7,730,170	13	320,350
REGION IV....	53	5,240,450	53	2,237,075
REGION V....	93	12,647,406	17	4,702,460
REGION VI....	61	5,136,996	2	47,200
REGION VII....	118	8,084,301	9	107,800
REGION VIII....	30	1,719,800	14	480,021
REGION IX....	108	11,241,578	24	520,482
	623	63,638,720	169	18,716,735

